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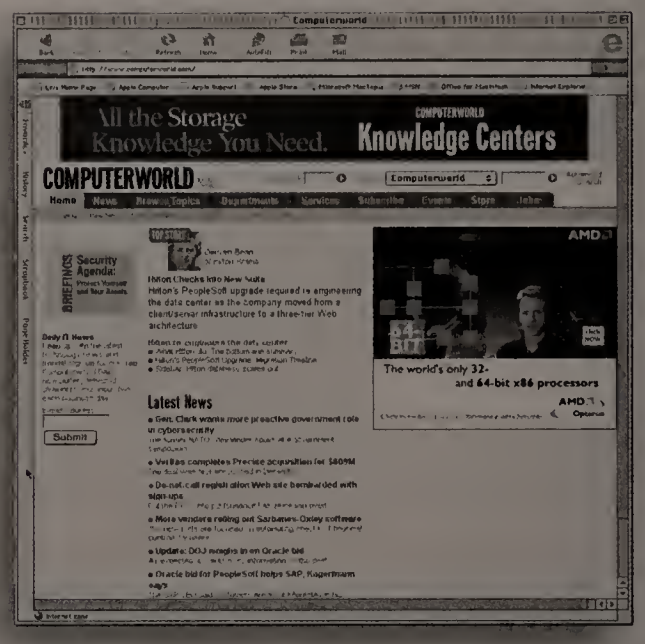

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The University of North Carolina and other users are taking an enterprisewide view of business intelligence. PAGE 8

Congressman Tom Davis says federal agencies need to shape up on IT security – or face more mandates. PAGE 14

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Users Get Going On SP2 Rollouts

Corporate deployments of XP security update widen, but IT execs cite lengthy app testing

BY CAROL SLIWA

Many corporate users dragged their feet in testing beta versions of the security-focused Service Pack 2 update for Windows XP and still had plenty of application compatibility testing to do when Microsoft Corp. released SP2 last August.

But a random poll of IT managers conducted by *Computerworld* last week, plus anecdotal evidence from industry analysts, indicates that far more companies are making significant headway in deploying SP2 or are preparing to do so.

Twenty-three of the 30 users who responded to the e-mail poll said they have started to deploy or have installed SP2 on existing machines, are rolling it out on replacement and new PCs, or are finishing testing and planning work that will enable them to install SP2 in the coming months.

Testing SP2, page 47

INSIDE

Microsoft details its packaging, pricing for SQL Server 2005. PAGE 8

THE COST OF H-1Bs

SPECIAL REPORT

Changes are coming to the controversial visa program. But don't expect the debate over whether the program is good for the economy – or costs U.S. workers their jobs – to end anytime soon. Patrick Thibodeau reports. STORIES BEGIN ON PAGE 4.

DID I TAKE JOB?

Author N. Sivakumar says he didn't. "When I was hired, nobody was laid off."

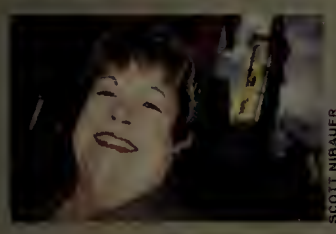
AVERAGE WAGE FOR H-1B WORKERS IN COMPUTER SYSTEM TECHNICAL SUPPORT JOBS

2001	2002	2003
$58,993	$54,415	$51,947

SOURCE: U.S. DEPARTMENT OF LABOR

ONLINE EXTRA

Computerworld scoured three years of data to find out how much newly hired H-1B workers were paid. Use our interactive tool to learn more. a5100



SCOTT NIBAUER

Municipal CIOs, such as Philadelphia's Dianah Neff, are turning IT into a high-profile, revenue-producing operation. By Matt Hamblen. PAGE 35

POLITICAL Animals

Search Engines Give Hackers a New Tool

Malicious coders use Google, other sites to find IT flaws on Web

BY JAIKUMAR VIJAYAN

The growing use of search engines to spread worms or find vulnerable IT targets poses a threat to companies that aren't careful about the data they make available on the Web, IT managers and analysts said last week.

The cautionary note follows the Feb. 17 release of a new variant of the MyDoom mass-mailing worm, which was programmed to spread itself by harvesting e-mail addresses from search engines such as Google, AltaVista and Lycos.

"The ability of search engines to discover a lot of information that was not necessarily hidden but was a lot less available previously is scary," said Matt Kesner, chief technology officer at Mountain View, Calif.-based law firm Fenwick & West LLP.

The latest worm was similar to MyDoom-O, an earlier variant that flooded search engines with automated e-mail address search requests last July — briefly disrupting the availability of Google Inc.'s Web site. In addition, in December a worm called Sanity used Google to identify and attack vulnerable systems by looking for specific text on Web sites powered by an open-source bulletin board application.

The appearance of such worms indicates that "Google hacking"

Hackers, page 16

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Viktor Portmann
Project Manager, *Department of Foreign Affairs, Switzerland*

Microsoft Windows Server System makes it easier for Switzerland's Federal Department of Foreign Affairs (DFA) to manage the infrastructure serving their embassies and consulates in 156 countries. Here's how: By using Systems Management Server 2003 and Microsoft Operations Manager 2005, DFA can automatically update its 500 remote servers from a central location, saving over $600,000 in travel expenses alone in the past year. They've also been able to reduce the time and cost of maintenance, boost user productivity, and find the time to better prepare for expansion. Software that's easier to manage is software that helps you do more with less. To get the full DFA story or to find a Microsoft Certified Partner, go to **microsoft.com/wssystem**

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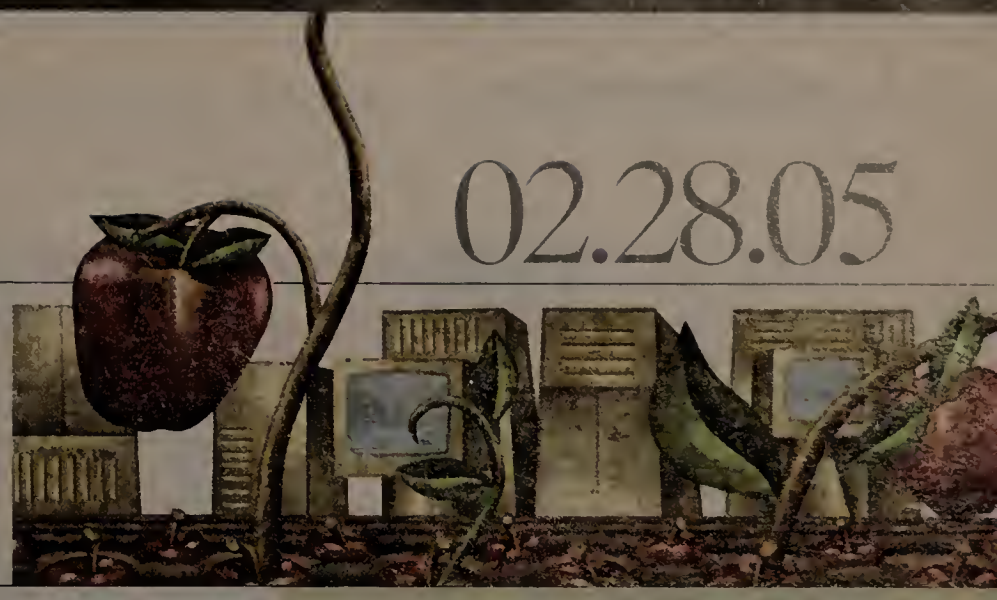

The Business Case for Linux

In this week's Management section: Building a formal business case for Linux is becoming increasingly important as more companies consider the open-source operating system for mission-critical applications. **Page 38**

In Business to Stay

In this week's Technology section: Apple remains a strong player in the graphics and digital-media production markets. And now the company is becoming an option for everyday server chores inside the data center. **Page 25**

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THE COST OF H-1Bs

As more 20,000 visas become available, the debate continues over whether the H-1B program hurts the wages and job security of U.S. IT workers.

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Thwart Common Web Vulnerabilities

WEB SITE MANAGEMENT: IT manager Susan Kennedy details the main risks of Web applications and explains how to mitigate them. QuickLink 52783

U.S. Should Welcome EU Privacy Drive

OPINION: U.S. companies should thank the Europeans for their push toward short, multilayered privacy policies that people will actually read, says business privacy expert Jay Cline. QuickLink 52731

Avoid Job Search Blunders

CAREERS: Technology has radically changed the way people seek employment. Robert Half Technology's Katherine Spencer Lee offers some suggestions for making those tools work for you. QuickLink 52277

Coping With Change

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THE H-1B EQUATION

Salary data shows split with wages of U.S. workers

SPECIAL REPORT

BY PATRICK THIBODEAU

Next week, the U.S. government will begin accepting H-1B applications from companies that want to take advantage of an increase in the fiscal 2005 visa cap to hire foreign workers who have advanced degrees from U.S. universities.

Up to 20,000 new H-1B visa slots are becoming available. Opponents of the cap increase say the graduates being hired will take jobs from U.S. workers, including IT staffers. Supporters argue that foreign workers are important to the country's economic health. At the core of the debate lies a question that's likely to reemerge as the application process begins again: Do H-1B visa holders help or hurt the U.S. workforce?

A *Computerworld* analysis of wage data from approximately 290,000 H-1B applications filed with the U.S. Department of Labor shows that H-1B salaries declined across the board between the 2001 and 2003 federal fiscal years in a number of IT job categories. They include programming, systems analysis, networking, end-user support and quality assurance. The wage decline mirrored what was happening to the pay of U.S. IT workers — at least until 2003, when the salary trends diverged, according to research firm Foote Partners LLC.

The government's Labor Condition Application database provides data only on new H-1B visa applicants and visa holders seeking a change of status. In addition, the Labor Department lumps the information into job categories that don't easily match with jobs in the private sector. Moreover, the government doesn't track visa holders and doesn't know the rate at which H-1B visa holders lost jobs in proportion to U.S. workers.

But David Foote, president and chief research officer at Foote Partners, said there was a split in 2003: The salaries of U.S. workers increased, while H-1B wages continued downward. That finding comes from comparing the H-1B data compiled by *Computerworld* and processed by Eastland Data Systems Inc. with salary information that New Canaan, Conn.-based Foote Partners collected through surveys of about 46,000 private-sector and government IT professionals.

In the category covering data communications and networking jobs, for instance, U.S. salaries rose 6.2% in fiscal 2003, Foote said. H-1B salaries declined 2% during that period, according to the Labor Department data. Foote said U.S. salaries in other IT job categories grew at rates ranging from 1.5% to more than 6%, while H-1B salaries saw declines of 1% to 5%.

In 2003, "the economic recovery began in earnest," Foote said. Salaries for U.S. workers increased because companies were trying to hold on to IT staffers who hadn't been laid off during the technology spending downturn, he noted. Meanwhile, offshore outsourcing increased, as did the use of contract companies that rely on H-1B visa workers.

Because clients didn't want contract-labor costs to eat into their offshore savings, contractors had to be competitive, according to Foote. "If they can't convince the client of theirs to pay more for the talent, then they just have to get the talent cheaper," he said.

The fight over H-1B visas ultimately revolves around the opinions and experiences of IT managers and workers.

Jesus Arriaga, CIO at Keystone Automotive Industries Inc., an auto parts distributor in Pomona, Calif., is among those questioning the need for more H-1B visas. In prior jobs in California in the late 1990s, he worked at companies that used H-1B workers, who were typically paid less than their U.S. counterparts. "It's just like offshoring," he said. "You're probably going to get similar skills at a lesser cost."

Nonetheless, Arriaga said that at Keystone, he's more interested in hiring U.S. workers, "especially when you have colleagues that have not found work." When U.S. workers "get bypassed because other foreign workers are coming in

IT WAGE DATA 2001-2003

JOB CODE	FY 2001 AVERAGE H-1B	FY 2002 AVERAGE H-1B	FY 2003 AVERAGE H-1B	% CHANGE '01-'02 H-1B	% CHANGE '01-'02 U.S. IT	% CHANGE '02-'03 H-1B	% CHANGE '02-'03 U.S. IT
030	$60,357	$60,554	$59,701			-1%	
031	$60,234	$57,041	$56,136				
032	$53,024	$48,062	$46,882			2%	
033	$58,933	$54,415	$51,947				
039	$66,763	$64,883	$64,247				

NOTES:
The H-1B data includes information only on new visa applicants. It doesn't include wage information on all H-1B visa workers in the U.S. at that time.

The U.S. IT data comes from Foote Partners LLC in New Canaan, Conn., which matched its own salary survey data on about 46,000 IT professionals against the government data.

JOB CODE GUIDE

030: Software engineer, computer programmer, programmer analyst, engineer and scientific programmer, systems programmer, chief computer programmer, systems analyst

031: Network control operators supervisor, data communications analyst, network control operator

032: User support analyst supervisor, user support analyst

033: Computer security coordinator, data recovery planner, technical support specialist, computer systems hardware analyst, quality assurance analyst, computer security specialist

039: Database administrator, database design analyst, microcomputer support specialist

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H-1Bs Help U.S. Economy, Says Book Author

N. Sivakumar's *book,* Dude, Did I Steal Your Job? Debugging Indian Computer Programmers *(Divine Tree, 2004) is an account of his experiences as an H-1B worker in the U.S. The book offers an inside look at the visa program and lays out a case for its use by employers. In an interview with* Computerworld, *Sivakumar discussed the issues raised in his book.*

The first part of your book title is very in-your-face.

Q&A

What are you trying to accomplish with that? A lot of people think that people like me came here and stole the jobs. People really never talk about the benefits that H-1B visa holders brought to this economy. The book is about Indian programmers and the nature of the visa holders. It's about abuse from the other side – abuse that nobody wants to talk about in public.

What abuse did you face? I never faced anything personally. But whenever I go online, I see a lot of hatred. That's what troubles me. Also, if you look at programs like CNN's *Lou Dobbs*, he . . . never talks about the benefit these folks bring to the economy.

Opponents believe H-1B visa holders are being used to push down the wages of U.S. IT workers. What's your view? I agree with that. "Body shops" abuse H-1B visa users – they bring in people for very low cost. But not all H-1Bs are abused. The majority is brought in to fill a gap. I came here as an electronic design automation programmer. H-1B workers definitely brought the salaries down, but they brought the right people in at the right time.

Do major companies pay reduced wages, or just the body shops? The body shops are the ones who pay low. When I was hired, I was paid exactly the salary I was promised.

Of the total number of H-1Bs in the U.S., what percentage do you believe work at IT contractors? The major body shops employ about 10% to 15% of the H-1Bs, but big companies, like Microsoft, Oracle, Cisco hired the rest – those folks don't abuse them. Those folks pay the right salaries and give all the benefits.

Since H-1B holders are increasing the supply of workers, shouldn't Americans who can't find jobs feel some resentment? An H-1B worker should not replace an American worker. . . . That's ethically wrong, lawfully wrong – it's wrong from any angle. When I was hired, nobody was laid off.

What are your plans now? I got my green card. I will be a U.S. citizen. This is what I want, the freedom. But I'm a programmer first. I'm not an author – my C++ is better than my English.

– Patrick Thibodeau

MORE 'DUDE'

For an extended version of this interview, go to our Web site:

QuickLink 52816
www.computerworld.com

and taking their jobs, I don't think that's right," he said.

Russell Lewis, CIO at GFI Group Inc., a New York-based financial services firm, has hired H-1B workers as full-time employees and has sponsored them for permanent residency green cards. Lewis said that his goal is to hire the best person for a particular job and that he has seen no savings in hiring H-1B workers full time.

"By saying, 'Well, the H-1B workers bring a cheaper labor force to the U.S.,' typically, our experience is that it doesn't do that," Lewis said.

Some H-1B workers attribute wage problems to IT contractors — sometimes called "body shops."

A Labor Department employee who works in the H-1B program and asked that his name be withheld said most complaints concern contractors who either paid H-1B employees below the prevailing wage or "benched" them, meaning they weren't paid between contracts.

Rajiv Dabhadkar, a former H-1B visa holder and IT programmer who returned to India last year, said he was always paid below prevailing wage levels by contractors. In addition, he once found out that he wasn't receiving medical insurance even though there was a paycheck deduction for the benefit.

"I've been really hurt by the visa system," said Dabhadkar, who formed a group in Mumbai, India, called NoStops.Org that provides call center support to H-1B and other tech workers.

The 20,000 additional H-1B visas will become available on March 8. Other changes to the H-1B program will also go into effect in the next few weeks, including a revamping of the government-mandated two-tiered prevailing wage system under which visa holders are paid.

H-1B workers are supposed to be paid a prevailing wage, based on state, federal or private-survey employment data. Most companies use federal or state salary data, according to immigration attorneys, who said the current system doesn't give employers much flexibility — often forcing them to pay a wage that is higher than an employee's skills and training warrant.

On March 8, the law will be changed to allow four tiers of pay in each prevailing wage category, enabling companies to pay H-1B visa holders something between the top and bottom levels of the prevailing wage scale.

"It has been a virtual nightmare dealing with a two-tier system," said David Nachman, an immigration attorney in Saddle River, N.J. "What we're seeing now is [that] finally the Department of Labor is coming to an understanding of what the real world is."

But Ron Hira, an assistant professor of public policy at the Rochester Institute of Technology in New York, said the four-tier system "will only push wages down . . . for many of those workers that were probably in between the two [tiers]."

Another change next month requires employers to pay 100% of a prevailing wage for new and extended H-1B petitions. That rate is now 95% of the prevailing wage. Also, the fees for an H-1B application, including the cost of accelerated processing, will rise from $185 to $3,185.

GFI's RUSSELL LEWIS has seen no savings from hiring H-1B workers.

Frida Glucoft, a partner at Mitchell Silberberg & Knupp LLP in Los Angeles and chair of the law firm's immigration department, said the prevailing wage and application fee increases will likely discourage some companies from hiring H-1B workers.

Still, Glucoft expects the 20,000 new visas approved by Congress last fall to be gone in a week. **52802**

Foreign Students Fill Computer Science Graduate Programs

An argument cited by H-1B supporters for raising the visa ceilings from the high number of foreign students – especially from China and India – who come to the U.S. to study.

Foreign student enrollments account for about 70% of the masters and Ph.D. computer science students at Texas Tech University, according to John Borrell, dean of the graduate school of the 28,000-student university in Lubbock. Last year, the number of foreign students who applied for graduate admissions was more than three times the number of U.S. residents who did so, Borrell said.

In 2001, the most recent year for which figures are available, foreign students made up nearly 60% of graduate enrollments nationwide, according to the National Science Foundation.

Bored U.S. students aren't as interested in engineering and science studies as foreign students are. "We are not preparing our students out of high school to compete in the area of science and engineering very well," he said.

Most of the students enrolled in the New Jersey Institute of Technology's graduate program are foreign nationals. The Newark-based school has so far received 208 applications for admission in computer science master's degree programs next year, with about 165 of those applications from foreign students, said Stephen Seideman, dean of the school's college of computing science. The foreign students "will do everything they can to stay here," he said.

Typically, foreign graduates of U.S. universities get a one-year training visa after graduation and then seek an H-1B visa.

Rock Regan, former CIO for the state of Connecticut, said state agencies typically don't hire H-1B visa holders because of political concerns. But Regan thinks U.S. schools are "not putting out the number of qualified workers that the industry needs."

Despite the addition of 20,000 more visas for the current fiscal year, the H-1B cap is still less than half of its 195,000-visa peak. Regan suspects that the reduced number of visas will encourage offshore outsourcing of IT jobs. Offshoring "will become more of a reality if people can't get the talent here in the U.S.," he said.

Opponents see any increase in the number of visas as having an impact on the prospects of U.S. students. Norman Matloff, professor of computer science at the University of California, Davis, and a longtime critic of the H-1B visa program, said it's largely a matter of supply and demand. The more H-1B workers there are, the less opportunity there is for his students, Matloff said.

– Patrick Thibodeau

AT DEADLINE

Exec: HP Needs Gerstner Clone

If Hewlett-Packard Co. could clone IBM's former CEO Lou Gerstner, the beleaguered company would have the leader it needs after Carly Fiorina's ejection as CEO and chairman earlier this month, said HP Executive Vice President Mike Winkler. "We want strong operational leadership and hands-on execution capability," he said. (For more details, go to our Web site: QuickLink 52848.)

IBM Restates 2004 Services Revenue

IBM reduced the 2004 revenue figure for its Global Services unit by $260 million after discovering improper sales of third-party hardware at its Japanese unit, the company said in a U.S. Securities and Exchange Commission filing. A review of third-party agreements discovered that "certain IBM Japan employees acted improperly and inconsistently with IBM's policies and practices," IBM said.

EDS to Shutter 21 Data Centers

Electronic Data Systems Corp. plans to close 21 data centers in an effort to cut costs. EDS said it will close 17 centers in the U.S. and four in Europe. The outsourcer announced late last year that it planned to cut 15,000 to 20,000 jobs over the next two years.

Qwest Sweetens Its Bid for MCI

Qwest Communications International Inc. made a new bid for MCI Inc. in an effort to lure MCI away from rival Verizon Communications Inc. Qwest's new $8 billion offer matches its Feb. 11 bid but guarantees the purchase price and would allow a faster payout to MCI stockholders than its previous bid. MCI executives have accepted a $6.7 billion bid from Verizon, but Verizon's bid doesn't guarantee the purchase price.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL

MATTHEW FAULKNER

SAP Brings Mercury Into NetWeaver's . . .

. . . application development orbit. According to Christopher Lochhead, chief marketing officer at Mercury Interactive Corp., the Mountain View, Calif.-based company's LoadRunner application stress-testing tool should be fully integrated into SAP AG's NetWeaver application development and integration suite by Q2. That means programmers working with NetWeaver will get to run LoadRunner's tests, at no extra cost, to determine how well their applications will perform under ever-increasing workloads.

Although SAP paid Mercury to port LoadRunner to NetWeaver, Lochhead insists this isn't simply work for hire. He expects the deal to increase adoption of NetWeaver and Mercury's other testing tools. Mercury saw a 144% increase in sales of its J2EE application-testing software last year, Lochhead claims. Most of the sales were for IBM's WebSphere and BEA Systems Inc.'s WebLogic product lines. But, he says, NetWeaver is gaining ground.

LOCHHEAD: NetWeaver is gaining ground.

Sort through millions of security events . . .

. . . daily in a flash while keeping an eye on compliance issues. So promises Rani Merritt, senior vice president at ArcSight Inc. in Cupertino, Calif. She claims that ArcSight's Enterprise Security Manager software can sift through more than 100 million security alerts from network devices in a single day and, in real time, determine which alarms you need to care about. Later this year, the company will deliver prepackaged agents for Oracle Financials to help users oversee their adherence to regulations. For example, ArcSight plans to ship in May an agent designed to help health care providers stay in line with the data privacy mandates of the Health Insurance Portability and Accountability Act. In Q3, it plans to add an agent that supports compliance with the Sarbanes-Oxley Act. Merritt also hinted at another possible ArcSight event in 2005 — the company's initial public offering.

Bookmark an IT tool kit in your . . .

. . . browser by adding Information Technology Toolbox Inc.'s Web site to your favorites list. Dan Morrison, CEO of Scottsdale, Ariz.-based ITtoolbox, claims that his online resource for all things IT is different than, say, *Computerworld.com* or Google. For one thing, he says, the blogs and forums are written by technology practitioners, not lowly journalists. And trying to locate good advice is less dicey than it is via Google searches, Morrison claims. "Rather than help people find a needle in a haystack, ITtoolbox is providing a stack of needles," he says pithily. Although with 850 discussion groups active on the Web site, that's a lot of needles to sort through. Expect ITtoolbox to add support for Wikis — those Web pages that let anyone contribute thoughts on a subject. Morrison was coy as to when they might appear, but you should see them before the end of the year.

$367M
Forrester's estimate of 2005 Web analytics market.

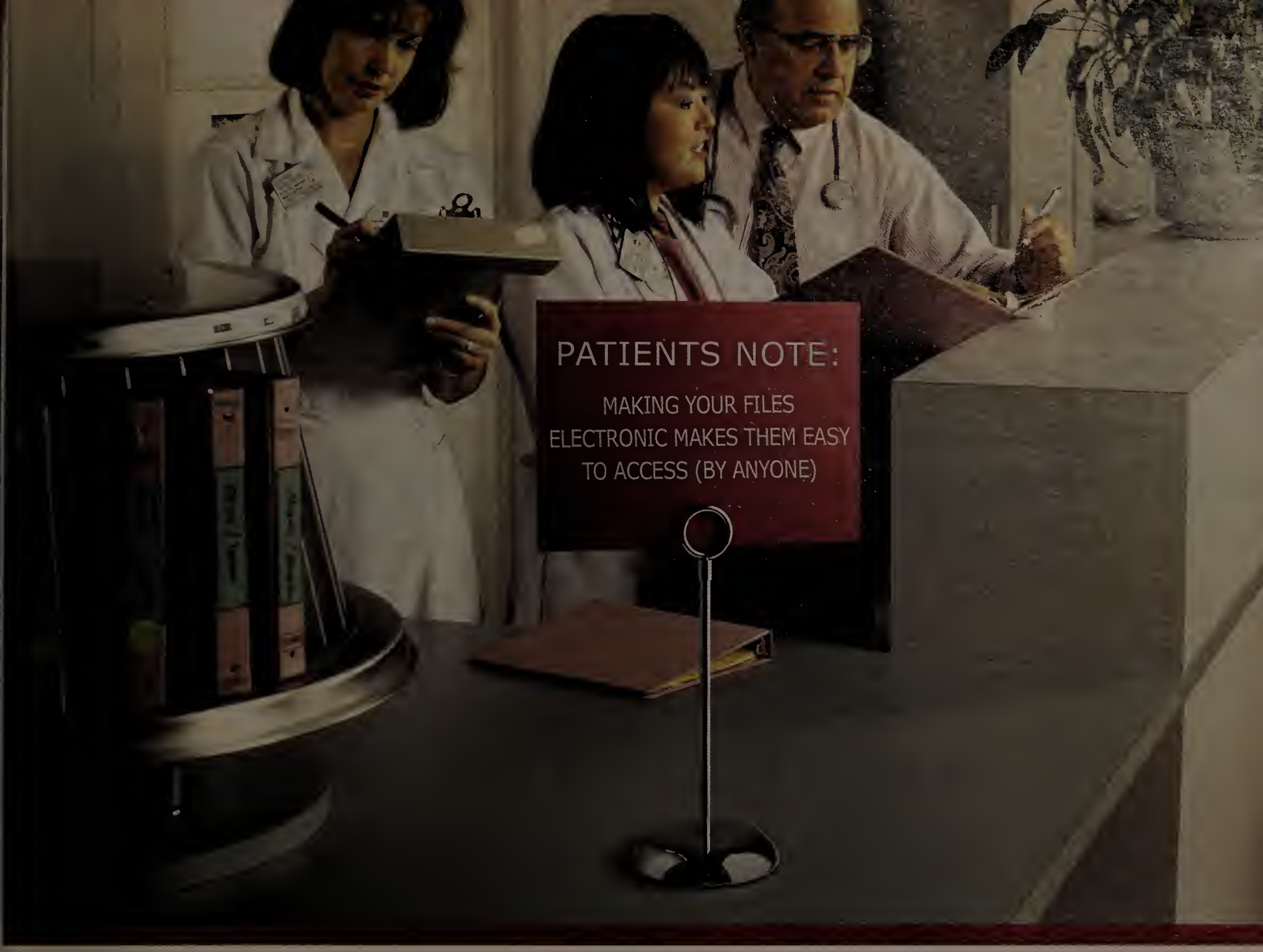
"As long as I count the votes, what . . .

. . . are you going to do about it?" That was Boss Tweed's question to those wondering about the veracity of a 19th century election in New York. Today's Web analytics "experts" could ask the same question of marketers, who seek objective insights into usage data from their Web sites. Perhaps the Web Analytics Association (WAA) in Washington will help. At least, the new industry group might bring consistency to the methods that Web traffic analysts use to tally their numbers. For example, "conversions" aren't counted the same way on most sites. Worse, the word doesn't even mean the same thing on different sites. Jim Sterns, the WAA's president, says the group "needs to prove itself to end users and overcome end-user skepticism." Sterns thinks it's essential that Web analytics users speak the same language — and count the same way. That's why the WAA's first project will be developing standard definitions and methods for Web analytics. Sterns hopes that the bulk of the work will be done by 2006. He says that given the volatile nature of both technology and language, the standard definitions "will be a live document." But counting methods, one hopes, will be written in stone. You know, 1 . . . 2 . . . 3 . . . 6 . . .

Secure your remote user access . . .

. . . using Active Directory. Of course, you'll need a third-party tool, such as the secure messaging appliances from enKoo Inc. in Fremont, Calif., according to enKoo CEO Ajit Deora. "Active Directory has a very primitive level of authentication," Deora claims. This week, enKoo plans to release an upgrade that lets its appliances use existing Active Directory lists to authenticate users on SSL VPNs that the devices set up. An enKoo 2000 appliance starts at under $3,000. **52789**

Upgraded enKoo appliances support Active Directory.



Even if everyone knew about the problem, would anyone know the solution?

As every aspect of business migrates to the Web, sensitive information once sheltered is now exposed. Because browser-based applications pass through the entire security perimeter.

If that doesn't wrinkle your brow, in a recent study 70 percent of companies reported security intrusions, with an average of 136 annually.

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f5

BI Tools Gain Higher Rank in Enterprises

Companies seek to provide more data to more users

BY HEATHER HAVENSTEIN

BUSINESS intelligence tools are pushing deeper into the enterprise as companies use them in projects ranging from large-scale user deployments to systems that supply key data to executive decision-makers.

Many companies are replacing disparate reporting tools with enterprisewide technology while adding corporate performance management (CPM) software to boost the visibility of transactional data.

For instance, the University of North Carolina system, which consists of 16 public educational institutions, chose Information Builders Inc.'s WebFocus technology for enterprise reporting that will eventually be used by more than 200,000 users.

Chapel Hill, N.C.-based UNC has completed 30% of a project launched in September to replace several different tools, including Crystal Reports from Business Objects SA, on its various campuses, said Vijay Verma, UNC's associate vice president for information resources and associate CIO.

Vendors Respond

Meanwhile, vendors are moving to meet user demands for new BI tools that can link disparate sources of performance data.

Hyperion Solutions Corp. this week will unveil its Compliance Management Dashboard, which marries internal control data with financial data to help companies track compliance with the Sarbanes-Oxley Act. The new dashboard will accompany the unveiling of a new version of Hyperion's performance management offering.

Earlier this month, Actuate Corp. rolled out the Actuate Financial Performance Management Suite.

Spectra-Physics Inc., a Mountain View, Calif.-based manufacturer of laser systems, has been using an earlier version of Hyperion's performance suite to integrate inventory data from multiple systems into dashboards.

"The [dashboard] application provides summary and detail-level visibility to inventory worldwide," said Mark Rowell, Spectra's IT director.

Toronto-based Labatt Breweries of Canada is deploying CPM tools from Ottawa-based Cognos Inc. to give sales, marketing and finance organizations across the country access to data pulled from 11 systems and 74 transaction sets. The company went live with the first phase of its deployment in October, said Michael Ali, Labatt's enterprise BI manager.

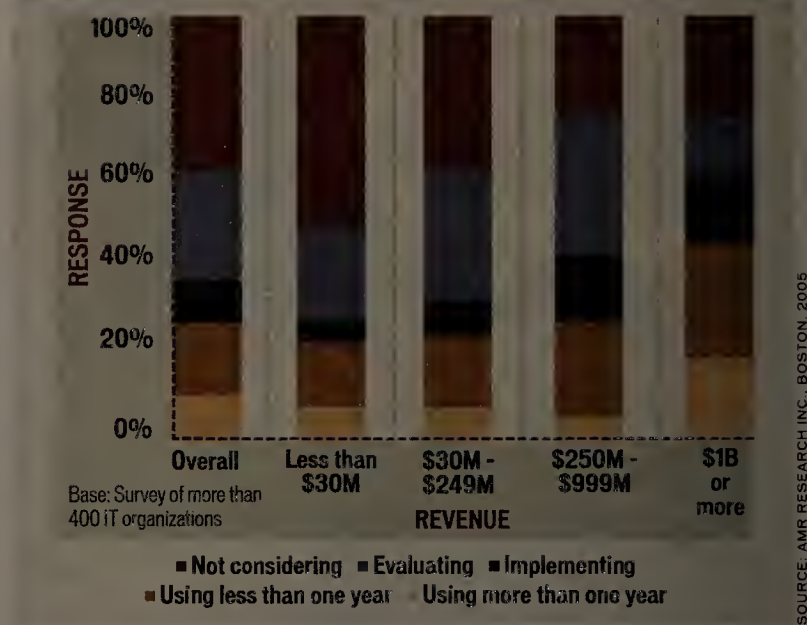
"We are trying to drive targeted performance management — getting everybody looking at the same things . . . throughout the chain of command, down to the territory manager," Ali said.

Blue Cross and Blue Shield of Kansas City in Missouri next month will migrate to the Business Objects XI BI and performance management platform to replace four reporting products for 275 users, said BI architect Erik Brokaw.

The health care organization expects the system to support as many as 450 users by the end of March.

Blue Cross and Blue Shield of Kansas City will also use Business Objects' CPM tools to begin giving executives access to consolidated analytics via dashboards. 52827

Dashboard Deployments by Company Size



SOURCE: AMR RESEARCH INC., BOSTON, 2005

Microsoft Unveils SQL Server 2005 Offerings

BY MARC L. SONGINI

Microsoft Corp. last week took the wraps off its next-generation SQL Server 2005 database lineup.

The SQL Server 2005 family, code-named Yukon, includes four editions — Enterprise, Standard, Workgroup and Express — priced at up to 25% more than comparable offerings in the older SQL Server 2000 line. The new systems will ship this summer.

A Microsoft spokeswoman said the price increases can be traced to new features in the offerings and contended that the products carry lower price tags than similar ones from rivals IBM and Oracle Corp.

Moreover, Microsoft pointed out that it offers multicore processing licenses, or per-processor charges, that cut price/performance costs.

In addition, SQL Server 2005 will allow users to exploit passive fail-over capability at no extra charge, the company said.

At the high end of the new lineup, the SQL Server Enterprise product includes business intelligence, data mirroring and other advanced capabilities, the company said. These features will let users buy for one price — $24,999 — a full-featured database without having to purchase multiple add-on products, said Tom Rizzo, director of product management for SQL Server.

In addition to the advanced data-mirroring capabilities, a snapshot feature lets the database constantly create snapshots of its configuration and thus report any changes to its backup system, Rizzo said. Managers can also create virtual partitions within the application, he said.

SQL Server 2005 Lineup

- **EXPRESS EDITION:** Includes simple management capabilities. **Pricing:** Available at no charge
- **WORKGROUP EDITION:** Includes support for backup log shipping. **Pricing:** $3,899 per processor
- **STANDARD EDITION:** Features fail-over clustering and reporting tools. **Pricing:** $5,999 per processor
- **ENTERPRISE EDITION:** Includes advanced business intelligence tools and data-mirroring capabilities. **Pricing:** $24,999 per processor

Immediate Gains

The reporting capabilities in the Enterprise edition have already allowed users at beta-tester Summit Partners to retire older analytical tools, said Damien Georges, manager of database applications at the Boston-based private equity firm. The new SQL Server replaced a mixed system built around Microsoft Access and software from Actuate Corp. and Crystal Decisions Inc., he said.

The package boosted performance times while cutting software costs by more than $100,000 because SQL reporting costs are already bundled into the existing license, Georges said.

In March, Summit plans to upgrade a SQL Server 2000 system that powers its Siebel Systems Inc. CRM application to SQL Server 2005. The company wants to change to the Enterprise or Standard edition to enable it to implement a disaster recovery plan that includes database mirroring to a redundant server.

In addition to SQL Server 2005 offerings, Microsoft also released a new SQL Server 2000 Workgroup Edition with the same capabilities as its SQL Server 2005 counterpart but based on the older system's functionality. That version will ship by midyear.

Mainstream support for SQL Server 2000-based offerings will end two years after SQL Server 2005 ships. Extended support will end five years thereafter, Microsoft said. 52821

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BRIEFS

BEA Finally Joins Eclipse Foundation

BEA Systems Inc. said it will join the Eclipse Foundation for open-source development tools and base its integrated development environment around the Eclipse standard. BEA's membership represents a turnabout for the company, which had long been a holdout. BEA cited in its decision IBM's divestiture of Eclipse and its market victory over the rival NetBeans open-source tools initiative led by Sun Microsystems Inc.

Sonoma Demand Outstrips Supply

Intel Corp. has been unable to keep up with demand for Sonoma, the notebook technology it introduced in January, a spokeswoman confirmed. "As a result of strong demand, we are somewhat lean on Sonoma component inventory," she said. Sonoma, the latest update to Intel's Centrino package, includes the Pentium M processor, the Alviso chip set and the Intel Pro/Wireless chip for 802.11 Wi-Fi.

Microsoft Buys Axapta Tool Kit

Microsoft Corp. has purchased from one of its partners a tool kit intended to simplify deployment of its Axapta software for managing finances, supply chains, employees and other business resources. Microsoft bought the ERP Complete tool kit from En'tegrate Software LLC. Terms of the sale weren't disclosed.

Hitachi Cuts Price Tag for Microdrive

Hitachi Global Storage Technologies Inc. has started shipping a new version of its 1-in. Microdrive hard disk drive, which can hold 50% more data than its current highest-capacity model. The 6GB version of the drive costs $299, compared with the $499 price of past Microdrive products. The company is also lowering the price of its 4GB Microdrive to $199.

HP to Integrate AppIQ Suite Into Storage Management

Will repackage resource manager as Storage Essentials SRM by month's end

BY LUCAS MEARIAN

HEWLETT-PACKARD Co. today will announce plans to integrate its Systems Insight Manager server management platform with a storage resource management (SRM) suite from AppIQ Inc.

HP joins Hitachi Data Systems Corp., Sun Microsystems Inc. and Silicon Graphics Inc., which have signed similar agreements with AppIQ over the past year to repackage the StorageAuthority SRM suite.

However, AppIQ Chief Technology Officer Ash Ashutosh said the agreement with HP is more wide-ranging and calls for a much tighter integration with HP's systems management platform.

Eric Craig, managing director of the technology division at Continental Airlines Inc. in Houston, said having an integrated view into his entire hardware environment could reduce the number of storage administrators he needs by handing systems oversight off to operator-level employees.

"The more I can streamline my tool set and the fewer [management interfaces] I have to handle, the more I can take operator-level skill sets and throw them into watching these kinds of tools," said Craig, whose 150TB storage-area network (SAN) is mostly HP, along with some Network Appliance Inc. and Sun storage systems.

The Storage Essentials SRM suite — HP's moniker for the AppIQ software — will be available March 28 to 50,000 Systems Insight Manager users for $2,000 to $60,000, depending on the installation.

NEW PRODUCT

Storage Essentials

- Repackaged AppIQ Storage Authority suite
- Available as a stand-alone product on March 28
- Integration with Systems Insight Manager by year's end
- Modules include server, storage provisioning, chargeback, business application mapping and performance reporting
- Priced from $2,000 to $60,000, depending on the management modules used

The suite marks HP's first combined server and storage management application. The SRM suite will be integrated into Systems Insight Manager by the end of this year.

The integrated system will deliver basic SAN management, as well as modules for a variety of tasks, such as storage provisioning and application infrastructure monitoring across the ProLiant, Integrity and HP 9000 server lines and HP's storage-array lines.

While Storage Essentials will offer management of EMC, Hitachi, Sun and IBM storage systems at a basic discovery and provisioning level, Craig said he isn't interested in heterogeneous SAN management, because it's too complex and lacks adequate security.

"What I'd like to see is a tool that allows me to look at throughput in a particular I/O channel, [to] let me know if that I/O channel is saturated or what my average read rate times are and what my cache hit rates are," he said. "Those tools would be good to have for fine-tuning some of my high-performing applications."

Tony Asaro, an analyst at Enterprise Strategy Group Inc. in Milford, Mass., said the partnership with AppIQ should be a big boost for HP, whose storage operation continues to struggle. "I think the market expects more from them. They're one of the few total solution providers, along with IBM, and they have lost revenue over the last year and have lost people," Asaro said.

Bob Schultz, general manager of HP's Network Storage Solutions division, said each of Storage Essentials' modules is pretested to plug into the Systems Insight Manager platform, and because it's built on standards such as J2EE, SMI-S and Web-Based Enterprise Management, it also supports third-party software.

"As we move forward, Systems Insight Manager really becomes an integration platform that we can plug into management cores like OpenView and ISV third-party tools," Schultz said. 52818

MORE STORAGE COVERAGE

In This Issue: HP's Bob Schultz explains his plans for the company's storage unit. **Page 17**

Online: EMC is unveiling an upgrade to Centera that adds search engine technology:
QuickLink 52826
www.computerworld.com

Planning System Isn't Fully Delivering at UPS

Start-up problems slow package-flow technology rollout

BY LINDA ROSENCRANCE

United Parcel Service Inc. has acknowledged that its new package-flow system isn't operating as smoothly as expected, with problems at about 100 of the 300 or so delivery centers where the homegrown technology has been installed.

UPS began rolling out the package-flow system in late 2003 as part of a $30 million project [QuickLink 41713]. The Atlanta-based company planned to deploy the system at all of its 1,000 U.S. delivery hubs by this year. But now full implementation won't be achieved until the end of 2007, UPS spokeswoman Donna Barrett said last week.

The system uses bar-coded shipping labels and geographic information systems software, which runs on the company's back-end servers. According to UPS, the technology is helping delivery planners at some facilities develop more-efficient routes for drivers, saving the company millions of dollars.

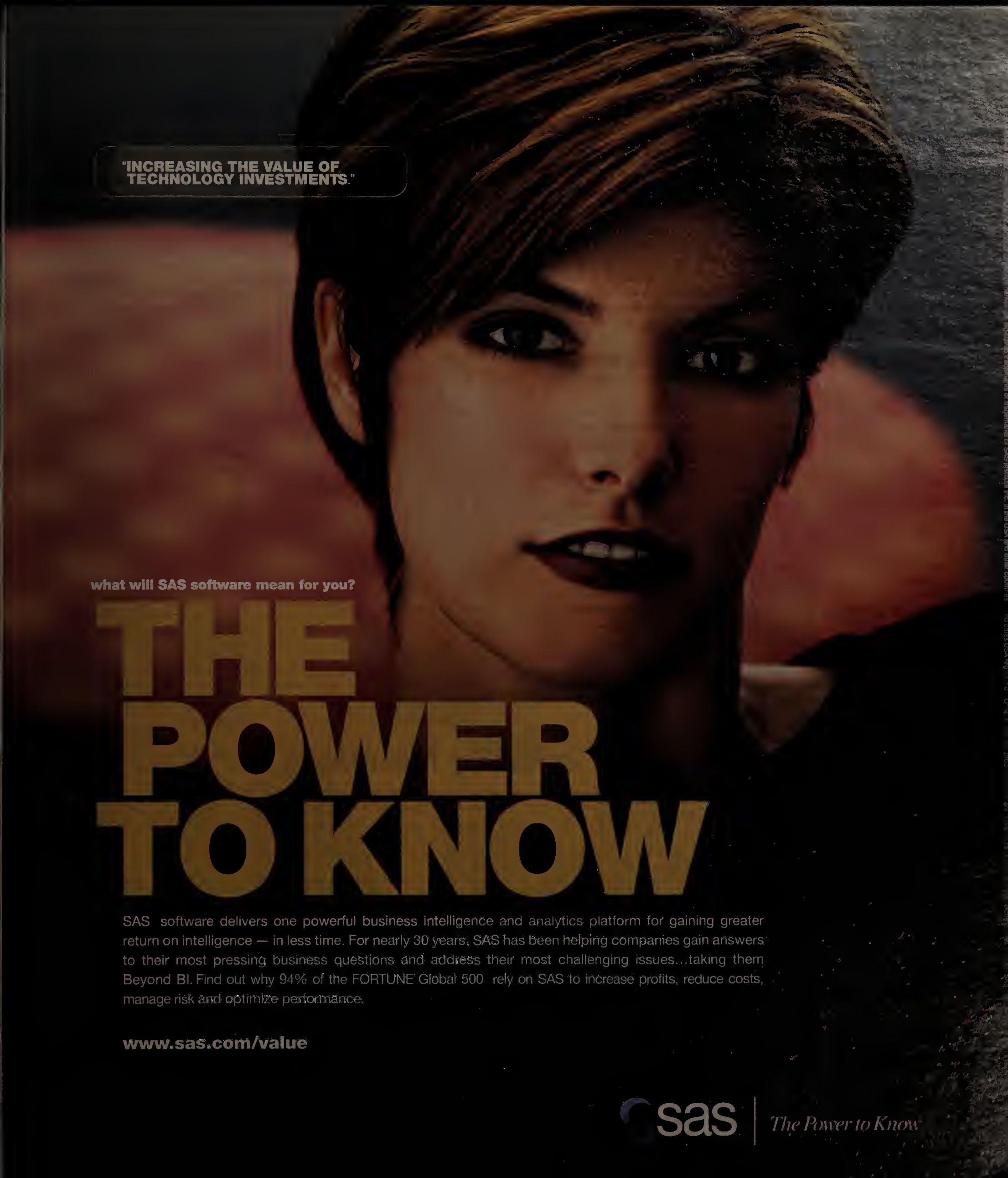
"This year, we'll probably see $50 million to $100 million worth of cost-cutting as a result of improved productivity and reduced mileage and associated fuel costs," Barrett said.

But Donald Broughton, a financial analyst at St. Louis-based A.G. Edwards & Sons Inc., said that level of savings is far less than what UPS projected two years ago. "At that time, they said that by 2007, they would save $700 million a year by more highly refining the way trucks were loaded and unloaded and the way routes were planned and executed," he said. But the technology is increasing the time it takes some workers to load packages onto trucks, he noted.

Barrett said the issues with the package-flow system are ones faced by all companies on rollouts of new technology. "It fundamentally changes how certain employees do their jobs. And change is extremely challenging when you're trying to implement it on a broad scale," she said.

At the delivery hubs that have encountered problems, UPS is retraining employees on using the system to give them a better understanding of how it changes their jobs and the benefits it offers.

"We're going back to those centers [and] getting the processes that we put in place, as well as the new technology, to run as smoothly as we'd like," Barrett said. 52825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GLOBAL DISPATCHES

An International IT News Digest

Singapore Gears Up Cybersecurity Efforts

THE GOVERNMENT of Singapore plans to spend 38 million Singapore dollars ($23 million U.S.) over the next three years to implement a master plan for protecting the nation from cyberattacks, Deputy Prime Minister Tony Tan announced last week.

The government intends to build a round-the-clock facility called the Cyber-Threat Monitoring Center by the second half of 2006, he said. The plan also includes the following elements:

- Assessing the vulnerability of critical economic sectors.
- Developing a reliable means of authenticating users for online transactions.
- Creating training and certification programs for IT security professionals.
- Improving public awareness of information security practices.
- Measuring the effectiveness of government agencies' business continuity plans.

Tan said that IT "has become the nerve center of our economy" and that cyberterrorism could disrupt critical operations such as systems used in marine navigation, stock trading or telecommunications. He indicated that the government is alarmed by a rash of computer viruses and phishing scams, plus news reports that North Korea has "an army of cyberwarriors."

U.K. Clothing Retailer Plans RFID Expansion

LONDON

LONDON-BASED RETAILER Marks & Spencer Group PLC plans to broaden its trial of radio frequency identification (RFID) technology, expanding the test of a clothing inventory system from nine stores to 53 in the second quarter of next year.

"The feedback so far from our staff has been very positive in that the RFID tags have clearly improved our stock-taking process," Marks & Spencer spokeswoman Olivia Ross said last week. "What takes up to eight hours a week to do manually can be done with RFID tags in about an hour."

She added that employees simply wave scanners over racks of clothes equipped with the tags.

The current trial involves inventories of men's suits, but women's undergarments will be added next year, Ross said. "We are looking to test RFID with size-complex items, and for bras alone, there could be over 40 sizes," she explained.

■ LAURA ROHDE, IDG NEWS SERVICE

GLOBAL FACT

$7.26B

Worldwide market for RFID technology in 2008.

SOURCE: FORECAST BY IDTECHEX LTD., CAMBRIDGE, ENGLAND

Deutsche Post, Adobe To Offer Stamps Online

DUSSELDORF, GERMANY

BONN-BASED postal company Deutsche Post AG and Adobe Systems Inc. this month jointly announced a Web-based service that lets users buy postage stamps online and receive them in the form of PDF documents. Buyers can print out the stamps using Adobe Reader Versions 6.02 and 7.0 and affix the postage to letters or parcels.

The Stampit Web service will initially be made available as part of a pilot program for eBay Inc. merchants in Germany and is scheduled to be rolled out to the general public within a few months, the companies said.

Deutsche Post is working with Adobe's German unit, Adobe Systems GmbH, which is based in Unterschleissheim. **52791**

■ JOHN BLAU, IDG NEWS SERVICE

Compiled by Mitch Betts.

Briefly Noted

The U.K.'s Foreign and Commonwealth Office – similar to the U.S. Department of State – this month awarded Hewlett-Packard Co. a seven-year, £180 million ($343 million) contract to upgrade the agency's secure network of desktop systems at more than 200 locations in the U.K. and abroad.

■ SCARLET PRUITT, IDG NEWS SERVICE

Jeff Smith, CIO at Telstra Corp. in Melbourne, Australia, since 2002, is leaving his post at the country's biggest telecommunications carrier on March 31, according to an internal e-mail from Ted Pretty, Telstra's general managing director. In the e-mail, Pretty praised Smith's accomplishments but also signaled that a shake-up of Telstra's IT operations is imminent.

■ JULIAN BAJKOWSKI, COMPUTERWORLD TODAY (AUSTRALIA)

The European Medicines Agency, a London-based regulatory organization, this month awarded MicroStrategy Inc. in McLean, Va., a $3 million contract to provide business intelligence software and services for analyzing drug safety.

Feds Could Face More IT Security Mandates

Legislator says some agencies have 'a long way to go' on protecting systems

BY JAIKUMAR VIJAYAN

On Feb. 16, U.S. Rep. **Tom Davis** *(R-Va.), chairman of the Government Reform Committee, released a report card giving federal agencies an overall D+ grade on computer security for 2004 [QuickLink 52707]. In an interview last week, Davis spoke about the government's IT security performance and warned that more mandates are on the way if agencies with low grades don't fix their problems soon.*

What were your conclusions on the overall security performance of federal agencies? I think it's improving, but it's not improving fast enough at this point. The overall agency scores rose by 2.5 points, but they still scored a D+. We just need to continue to give this focus, and hopefully we won't have some kind of cyberattack or cyber Pearl Harbor. We have to be inspired by that to try and stay ahead of the curve.

Why are some agencies faring so well while others appear to be struggling? Leadership. It basically goes to the CIO and the agency heads and their ability to coordinate on this. They need to get a plan, and they need to execute on it. Some agencies have put the resources into it, and others — they haven't. Some have still a long way to go.

What's the incentive to improve when there are no funding cutbacks or other repercussions for bad grades? I don't know if you want to punish people by withholding funding. That makes it even tougher for them to meet their goals. But I think there may be an embarrassment factor. If you want to have career advancement and you come off an agency that has got a bad [security] grade, it probably isn't going to help you move to the next level. Eventually, I think there will be a funding attachment. These scorecards are fairly new, and we are trying to get an appropriations buy-in.

Many of the recommended security controls for federal agencies will become mandated by the end of this year. What impact will that have on the report cards next year? Mandates are better than suggestions, unfortunately. You hate to get to the point where you have to mandate things that need to get done. But I think that is the way Congress will react — with more mandates on agencies that will put more burden on them. We would rather have [agencies] solve the issues themselves. But if they can't do that, I think they'll get a lot more mandates.

You identified several areas where federal agencies need to improve, including annual reviews of IT contractors, testing of contingency plans and incident reporting. What's the problem? They don't have the finances for it. The basic problem is that we're asking them to do this in some cases without giving them a lot of new money. They're kind of waiting for additional money to come through.

How will the CISO Exchange that you're setting up for chief information security officers help improve things? Hopefully, we'll get people from agencies that have [improved security] going into agencies that haven't done it and showing them how to do it. You get some [cross-]pollination that way. **52822**

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[1]Gartner DataQuest, Teleworking: The Quiet Revolution, September 2004. [2]Winner, Mercom "Best-in-Test in Large Enterprise IP PBX" competition. © 2005, Avaya Inc. All Rights Reserved. Avaya, the Avaya Logo, and all trademarks identified by ® or ™ are trademarks of Avaya Inc. and may be registered in certain jurisdictions. All other trademarks are the property of their respective owners.

Software Ownership Battle Adds $10M to Cost of 'Big Dig'

BY MARC L. SONGINI

FAILURE to secure access to the source code of a key application added more than $10 million to the cost of the infamous "Big Dig" highway construction project in Boston, according to the Massachusetts state auditor.

The application, called the Integrated Project Control System (IPCS), handles traffic, roadway, fire and security systems management for the $14 billion Central Artery/Third Harbor Tunnel Project. Software development for the IPCS project remains unfinished.

The initial application was created by Transdyn Inc., which was awarded the contract for the first phase of the project. The problem occurred when Transdyn refused to hand over access codes for the application to Honeywell Technology Solutions Inc., which won a contract to develop the next phase.

Massachusetts State Auditor Joe DeNucci this month said the failure of project managers to secure "timely ownership" of the IPCS software boosted the cost of the project. The matter wound up in court and cost the state millions in overruns and other costs, he said.

"The significance of this audit is that it's a good example of the kinds of things that went wrong in the project," said a spokesman for DeNucci. It indicates a failure to foresee that "a dispute over the access to the software code [could lead to a] problem that would delay the second phase," he said.

Groundwork for Lawsuits

The initial phase of the IPCS project started in 1994, when Pleasanton, Calif.-based transportation software maker Transdyn won a $52 million contract to develop the application for the first phase of the Big Dig, according to the audit report. The system was based on Transdyn's Dynac transportation management software. In 1999, Honeywell won a $104 million contract to build the next phase of the system to control and monitor the entire Big Dig project.

At that point, Transdyn refused to turn over the Dynac source code to Honeywell, claiming that the technology was "proprietary and forms the cornerstone of a portion of its business." The state argued that Dynac had been modified as part of the project and had thus become a customized piece of software not subject to the legal safeguards for off-the-shelf applications.

Massachusetts paid Transdyn $350,000 in a 1999 out-of-court settlement of lawsuits that each had filed against the other. Under the deal, Honeywell sublicensed the software from the state "under certain safeguards," the report stated.

The auditor based the $10 million price tag for the problem on the state's decision to waive $2.72 million in damages it believed it was owed by Transdyn and an estimated $7.2 million cost for the four-month delay in the project caused by the interruption of the software hand-over — bringing the total cost overrun to $10.3 million.

Meanwhile, Honeywell in December negotiated an end to its contract for the project, whose price tag has ballooned from $104 million to $188 million since 1999. Vic Miller, vice president and general counsel at Columbia, Md.-based Honeywell, said the audit bolsters his company's position that the late delivery of the Dynac software was among the factors that affected its ability to deliver its portion of IPCS for the agreed-upon price.

Currently, Transdyn is negotiating with Big Dig authorities to complete the IPCS system, said a Transdyn spokesman. He said the company "is not in a position to comment" on the auditor's report.

The Massachusetts Turnpike Authority, which manages the Big Dig, declined to comment on the specifics of the audit. In an e-mail statement the authority said, "We have been very candid about the issues we have encountered with the installation of the IPCS system and have already referred those issues over [to the state attorney general] for potential cost recovery actions." 52820

THE ASSOCIATED PRESS

PROJECT MANAGERS' failure to secure ownership of software code added $10 million to the cost of Boston's Big Dig construction project, pictured here in February 2000.

Continued from page 1

Hackers

— a term coined to describe attacks involving the use of search engines — is becoming a potent threat to IT security, said George Kurtz, senior vice president of risk management at security software vendor McAfee Inc. in Santa Clara, Calif.

"It's all about coming up with the right search criteria," Kurtz said. "By crafting certain requests, you can pull back a lot of very specific information." For instance, searches can reveal the existence of misconfigured servers, as well as password files and vulnerable software, he said.

Search engines such as Google "provide an extremely effective way" to gather information that can be used to attack Web sites, concurred Graham Cluley, a senior technology consultant at Sophos PLC, another security vendor.

Hackers have always relied on shortcuts and tools to do their dirty work, said Hugh McArthur, director of information systems security at Online Resources Corp., a Chantilly, Va.-based online bill processor. "This is just one more approach," he said, adding that his company is using search engines and other tools to look for any compromising information that can be gleaned from its Web site.

Robert Olson, a systems administrator at Uline Inc. in Waukegan, Ill., said the distributor of packing and shipping materials is doing regular audits in order to keep "a tight rein" on the information available via its Web site.

"We are, of course, concerned," Olson said. "Worms that use tools like Google, Yahoo, MSN Search or AltaVista to seek out vulnerable systems or e-mail addresses make for a much more efficient attack."

The advanced functions supported by search engines make it relatively easy for even novice hackers to scope out Web sites and gather vulnerability data, according to Kurtz. Google lets users limit searches to specific Web sites and domains, to specific files on Web sites and even to specific pieces of text within files.

There is also a growing volume of information on the Web about search strings that can be used to unearth sensitive information from the unwary. One site has compiled a database of more than 800 different Google hacks that can be used to pull data from Web sites, Web cameras and even Internet-connected printers.

> **"The ability of search engines to discover a lot of information that was not necessarily hidden but was a lot less available previously is scary.**
>
> **MATT KESNER,** CHIEF TECHNOLOGY OFFICER, FENWICK & WEST LLP

Such information can actually be useful to IT managers in figuring out where their security vulnerabilities are, said Jarrad Winter, network security manager at Western United Insurance Co. in Irvine, Calif. "It can be really handy for penetration testing," he said.

Apart from keeping sensitive data off the Web, there are other steps companies can take to ensure that they aren't compromised by searches, Kurtz said. That includes using so-called robots.txt files to block search-engine crawlers from indexing sensitive portions of Web sites. In addition, disabling directory listings can keep crawlers out if they slip by a robots.txt file. Using passwords to protect IT-related information on sites is also a good idea, Kurtz said. 52823

HP Exec Explains Plan For Storage Operation

Vendor is adding expertise, channels to take on IBM, EMC

BY LUCAS MEARIAN

Although Hewlett-Packard Co.'s storage revenue has been on the upswing since last year's third quarter, it remains down from a year ago. HP's first-quarter results showed a slight year-over-year decline in storage revenue, but a smaller one than in previous periods. **Bob Schultz,** *HP's general manager of storage solutions, spoke with* Computerworld *about HP's plan for improving its competitive position in the storage market. One thing Schultz wouldn't talk about is whether the departure of former HP CEO Carly Fiorina will affect his plans.*

How are you responding to increased pressure from IBM at the high end, Dell at the low end and EMC at both ends? In Q3 [2004], we were down 15% [year-over-year in storage revenue]. In Q4, we were down 10%. In Q1 [2005], we were down 1%. That gives you the trajectory, which is up and to the right. On all those fronts, the challenge was around field execution. We've been hiring storage specialists, because as you look at the high end, that's certainly where you need someone that's steeped in knowledge. We've been partnering with channel partners. That process is going on, and that'll give us more coverage.

You recently signed a deal with AppIQ to resell its StorageAuthority product as a way to combine server and storage management on one screen. Vendors like Hitachi and IBM have signed similar deals. What sets HP apart? We're the first ones really unifying servers and storage. When I look at what Hitachi has done in the past, it's been all around storage. What I believe IBM is doing is all around its TotalStorage management center. What we're doing is saying, as you look out into the future, where we virtualize the infrastructure, you really want to be managing the servers and storage in a consistent way.

Users have given your midrange Enterprise Virtual Array high marks, but that's at the homogeneous level, not the heterogeneous level. How will HP support competitors' systems? We're missing mainframe support on the EVA, but that's not the targeted market for EVA.

That's on the server side, but what about the host side? What if I have EVA on the back end and I want to have EMC's Centera or Hitachi's Thunder array on the same network? The benefit of working on the open management platform is that we'll manage heterogeneous environments. That's one of the values of working with AppIQ. They bring relationships with Hitachi and others.

IBM said it is already doing that and extended the integration recently to its BladeCenter server systems, where you have the servers, network and storage all in one place. What sets you apart? "All in one place" is different from integrated. A lot of people . . . say, "Let's have this single pane of glass," which means, "Let's have 27 windows running on a single monitor." A lot of companies say [they] have tools in each space, but what they really haven't done is say, "We're going to have a systems management tool that highly integrates how I manage my storage and my compute environment." **52790**

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Starring John Cleese

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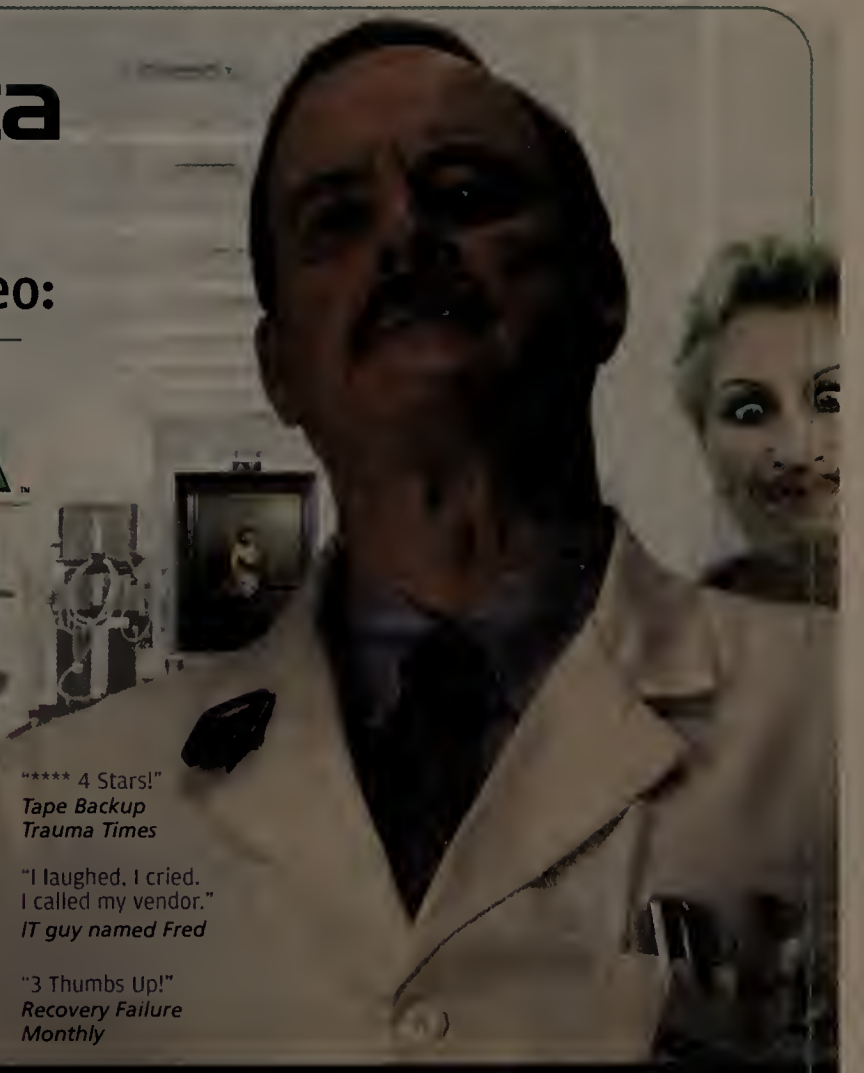

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the depot repair center. Calls must be received by 5pm local time in order to qualify for Next Business Day service. **(10) Full-size keyboard:** As defined by ISO/IEC 15412. **(11) Thinness:** may vary at certain points on the system. **(12) Travel weight:** includes battery and optional travel bezel instead of standard optical drive in Ultrabay bay, if applicable; weight may vary due to vendor components, manufacturing process and options. **(19) SuccessLease:** SuccessLease program, rates and terms are provided by third party financiers approved by IBM Global Financing to credit-qualified business customers installing in the U.S. Featured monthly lease payments based on prespecified end-of-lease purchase option; documentation fee and first month's payment due at lease signing. taxes are additional. Options cannot be leased separately. IBM and IBM Global Financing reserve the right to alter product offerings, specifications or financing terms at any time, without notice. **Trademarks:** The following are trademarks or registered trademarks of IBM Corporation: IBM, the IBM logo, Rapid Restore, Rescue and Recovery, ThinkPad, Ultrabay, UltraConnect and UltraNav. Microsoft and Windows are registered trademarks of Microsoft Corporation. Intel, Intel Xeon, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Intel SpeedStep and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Other company, product and service names may be trademarks or service marks of other companies. © 2004 IBM Corporation. All rights reserved.

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ChoicePoint Error Prompts Calls for Identity Theft Law

Privacy groups, senator demand hearings

BY GRANT GROSS

A variety of privacy groups and U.S. Sen. Dianne Feinstein (D-Calif.) are renewing calls for a national privacy law in the wake of news that data collector ChoicePoint Inc. mistakenly gave private information on up to 145,000 U.S. residents to identity thieves.

Alpharetta, Ga.-based ChoicePoint this month reached an agreement with 19 state attorneys general to tell potential victims that thieves may have gained access to personal information such as Social Security numbers and credit reports [QuickLink 52719].

Potential victims live in all 50 states, the District of Columbia, Puerto Rico, Guam and the U.S. Virgin Islands.

The ChoicePoint problem points to the need for a national privacy law, said the Electronic Privacy Information Center (EPIC) and the Center for Democracy and Technology (CDT).

For most U.S. companies, only a 2003 California law requires identity theft notification.

"There certainly is agreement that we need better notification, exactly because of cases like this," said Ari Schwartz, associate director at the CDT.

Feinstein has also called for congressional hearings on privacy legislation she introduced this year. Feinstein's Notification of Risk to Personal Data Act would require businesses and government agencies to notify likely victims when there is a "reasonable basis to conclude" that a criminal has obtained unencrypted personal data.

Legislative Prospects

Feinstein's bill lacks co-sponsors, and a similar bill of hers went nowhere in Congress in 2004. "Moving any bill is always a difficult prospect, but now more people are coming to an understanding of the issue of identity theft," a Feinstein spokesman said.

Schwartz and Marc Rotenberg, EPIC's president, questioned whether ChoicePoint would have notified potential victims at all without the California identity theft law. "They've been reckless with people's information," Rotenberg said of ChoicePoint.

David Bernknopf, a ChoicePoint spokesman, disagreed. The company first notified the sheriff's office in Los Angeles County in October of the possible data leak because it believed the leak started there, he said. It's still not clear how the thieves got access to ChoicePoint's data, Bernknopf said.

Authorities believe a group of people used IDs stolen from legitimate businesspeople to set up phony businesses that contracted with ChoicePoint for identity checks, he said. **52787**

Gross writes for the IDG News Service.

Phony FBI E-mail Launches Virus

BY TODD R. WEISS

A fake e-mail that purports to be from the FBI is circulating on the Internet with a computer virus as its payload.

The FBI last week warned that the unsolicited e-mail tells users that "their Internet use has been monitored by the FBI's Internet Fraud Complaint Center and that they have accessed illegal Web sites."

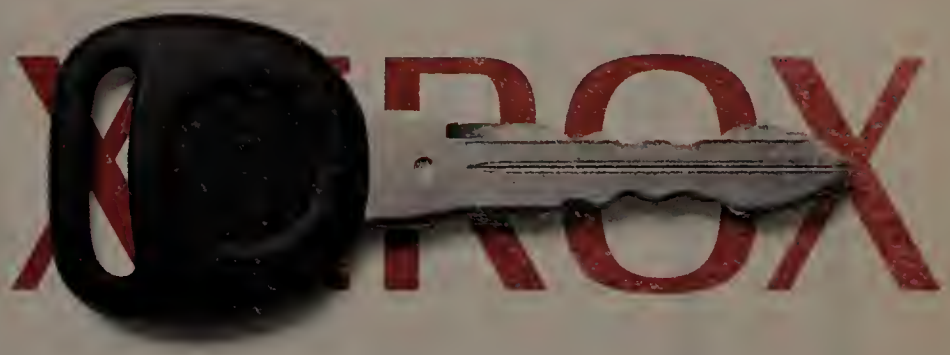
The bogus message then asks recipients to click on an attachment and answer some questions about their alleged illegal Internet use. But rather than being a questionnaire, the attachment infects the recipient's computer with an as yet undetermined virus.

Paul Bresson, an FBI spokesman, said last week that the agency discovered the phony e-mail over the previous weekend after several recipients notified the FBI. He said he didn't know exactly how many complaints were received.

The e-mail message has multiple misspellings and is written in broken English, Bresson said. "The wording is very poor, which helps us," he said. "We're hoping that that flags people."

Bresson said he didn't know whether any victims of the scam have provided their credit card numbers or other information.

Pete Lindstrom, an analyst at Spire Security LLC in Malvern, Pa., said fake e-mail messages will continue to be a problem until tighter standards for sending e-mails are adopted by senders and recipients. **52788**



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DON TENNANT

Rights and Wrongs

HAVE YOU SEEN that IBM commercial with the little Chinese girl? It's one of those IBM help desk ads, and the girl says she needs help because she wants to learn about so many things, but she lives on a farm in China and can't go to school. The problem is solved when she's able to attend a virtual class made possible by technology.

DON TENNANT is editor in chief of *Computerworld*. You can contact him at **don_tennant@computerworld.com.**

I first saw the commercial around the time I was receiving a lot of mail from irate readers who vehemently disagreed with the position I took three weeks ago in my column titled "The Three Stooges." In that column, I argued that the three U.S. congressmen who raised a national security alarm in response to IBM's plan to sell its PC business to China's Lenovo Group were engaged in legislative buffoonery [QuickLink 52310].

The reaction from some readers was intense. "You are just another silver-haired corporate lackey, toeing the corporate line," one wrote. "Companies like IBM and Microsoft, and corporate stooges like yourself who front for them, are little more than traitors." Citing the threat of war with China, this reader suggested that I consult with my son, who is in the Navy, before I write my "next piece of knuckle-headed, traitorous trash."

"You put personal gain over patriotism," another reader echoed. "You deserve a traitor['s] fate. I would love to watch that."

It occurred to me as I watched the little girl in the IBM commercial that a lot of these readers are probably irate about IBM supplying technology to educate Chinese children. After all, educated children grow up to be skilled adults who might very well be compelled to join China's military forces. I have no doubt that many Americans contend that our national security would be better protected by withholding the means for Chinese children to be educated. I disagree.

For the record, I'm not naive. I wasn't all that far from Beijing during the Tiananmen Square massacre on June 4, 1989. There are a lot of things in China that need to change. But how can they be changed? And should we help change them?

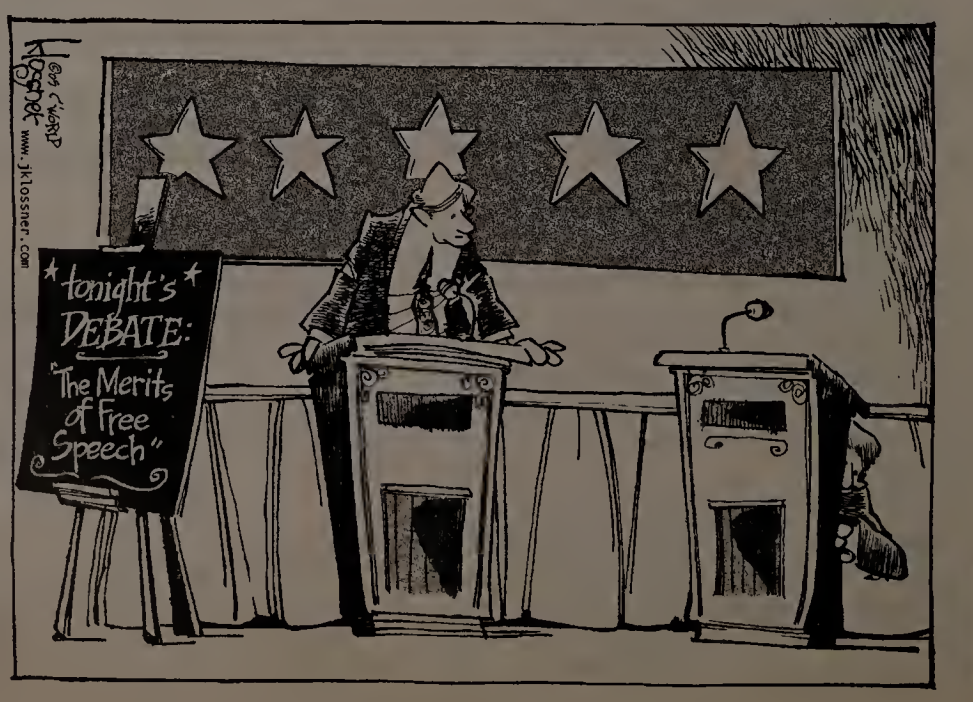
Of course we should. That's because a little girl on a farm in China has just as much right to an education as a little girl on a farm in Iowa. And it's just as important for a Beijing University student watching a tank rumbling toward him to have free speech as it is for a Harvard student protesting the low pay of janitorial workers. The only way those changes will come is for the West to continue to engage China commercially, culturally and politically. Anyone who has been to China in the past decade has witnessed remarkable positive change as a direct result of that engagement.

And for what it's worth, when the time does come that the people of China have free speech, you can bet they'll exercise it.

That's what Ron Baker of Oregon City, Ore., did. "I had to gargle with Listerine after reading your tripe," he wrote in response to my column. "It's [expletive deleted] like you that make me hate this industry [to which] I have dedicated a thirty-year career." Baker gave me permission to use his name, and I admire that.

Unfortunately, other readers who were outraged by my position wouldn't allow their opinions to be published with their names. That's a tragic waste of a precious right that too many people live without. And wasting that right is just plain wrong. **52776**

Don Tennant



DAVID MOSCHELLA

FCC: Mission Accomplished

"It is the mission of the Federal Communications Commission to ensure that the American people have available — at reasonable costs and without discrimination — rapid, efficient, nation- and world-wide communications services; whether by radio, television, wire, satellite, or cable."

– Congress' original charge to the FCC, 1934

WILL WE ever see the day when a large government agency proclaims "mission accomplished" and starts winding itself down, not because of failure but because of success? Don't bet on it. But that's the question that comes to mind as we watch SBC Communications swallow up AT&T, Verizon and Qwest go after MCI, and Sprint take over Nextel. While the usual assortment of advocacy groups will fret about excessive corporate size and power, when you look at today's telecommunications marketplace, it's pretty clear that virtually all of the FCC's goals have been achieved.

DAVID MOSCHELLA is global research director at CSC Research and Advisory Services, a Computer Sciences Corp. company. Contact him at **dmoschella@earthlink.net.**

It was less than 25 years ago that a heavily regulated AT&T dominated America's telecommunications industry. The U.S. judiciary wisely deemed this an undesirable structure, given the diversity and potential of emerging voice and data technologies. The 1982 antitrust settlement that led to the breakup of AT&T triggered an explosion in innovation and usage beyond what even the most zealous enthusiasts ever predicted.

It's worth remembering that in the early 1980s, the idea of breaking up AT&T was highly controversial, and the best means of doing it was by no means obvious, even to those who supported it. However, the decision to separate AT&T's local, long-distance and equipment businesses has proved sound. The latter two industries quickly became fiercely competitive; only the local operating companies held near-monopoly positions.

Over the past two decades, those local monopolies have also been steadily eroded, and thanks to the Telecommunications Act of 1996 and other policies, the largely artificial boundaries between local and long-distance services have blurred. The emergence of DSL, cable, and wireless voice and data services, as well as Internet-based offerings, is producing a highly competitive marketplace where the eventual winners are by no means clear. Which one of those horses would you bet on?

Of course, all is not perfect. Cable TV and local telephone services are still too expensive in some areas, and it would indeed be worrisome if a region's wired and wireless services were owned by a single company. There is also the risk that excessive access charges between various networks could become a real barrier to open competition. But these issues can be managed by state regulators, antitrust overseers and the marketplace. They no longer require a specialized agency focused on national telecom policy.

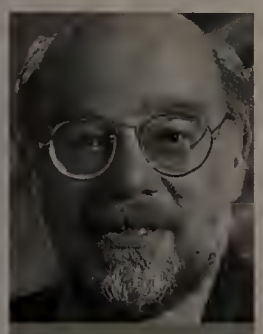
The idea of scaling back the FCC is not so much a cost-saving proposition. By government standards, the FCC's $290 million budget and 2,000 employees are rounding errors. And even with its primary mandate largely fulfilled, there are still areas — especially spectrum allocation and international satellite coordination — where the commission's work remains important.

But the era when the telecom industry was viewed as a highly unusual, even unique sector that required its own regulatory body has pretty much come to an end. Consider this a sign of technological progress and market maturity. If nothing else, treating the telecom business more like other major industries could thin the legions of highly paid lobbyists in the halls of Congress. When there are very few rules to write, there's not much for even the cleverest of lobbyists to do. **52720**

JERROLD M. GROCHOW

Firewalls' False Sense Of Security

THE Internet front door to almost every bank and financial services company in the world is guarded by two sets of firewalls defining a DMZ. Nearly every e-commerce site sits in a similar DMZ in what has become the de facto standard in Web security architecture. According to Sun Microsystems, "In today's tumultuous times, having a sound firewall/DMZ environment is your first line of defense against external threats." But I would argue that guarding the perimeter is lulling organizations into a false sense of security that results in ignoring the implementation of other security mechanisms in their applications and databases.



JERROLD M. GROCHOW is vice president for information services and technology at MIT and has been a consultant to the Treasury Department's Office of Critical Infrastructure Protection. He was previously CTO at American Management Systems and FOLIOfn. He can be reached at **jgrochow@mit.edu.**

In contrast, the Internet front door to MIT doesn't have a DMZ and pretty much doesn't even have a firewall. Universities begin with an assumption that everything is open, but these large organizations are arguably no more vulnerable to external threats than banks and financial institutions, and perhaps less vulnerable to internal threats.

A key reason for reduced vulnerability is the approach many universities take to creating authorization and application-level security in the absence of a secure perimeter. For more than a decade, universities have been implementing homegrown systems and working with vendors to ensure that their products don't make assumptions about working behind a firewall. We look for systems to incorporate application-level security based on verifiable user identities — an approach that continues to gain ground as organizations realize that firewalls alone don't provide the level of security they need in today's world.

In your own organization, do you pass around unencrypted passwords and data inside the firewall because you know you're behind the firewall? Are your application servers available to any request from anywhere (because they are behind the firewall) or only to those Web servers that need the applications they implement? Is everyone with access to applications allowed full access, or is each person's role (customer, authorizer, accounts payable clerk) part of the authorization protocol to applications? These are some of the issues we must face once we realize that firewalls don't really provide full application security. After all, once the firewall is breached, the outsider is inside, so we can't treat all insiders alike.

As a result, there is a growing interest in standardizing approaches to secure authorization and application access. Many security architectures at universities (and some corporations) are based on the Kerberos protocol and software (*http://web.mit.edu/kerberos*), first developed at MIT in the 1980s and still going strong. In fact, Kerberos is in the background of operating systems from Apple, Sun and Microsoft, but it's not yet fully implemented in many commercial applications. In addition to Kerberos, the Shibboleth Project, sponsored by Internet 2 (*http://shibboleth.internet2.edu*), is developing software to attack the problem of cross-organizational authentication. The Liberty Alliance is working on standards for cross-organizational authorization in Web services environments (*www.projectliberty.org*). And Kerberos can already complement or enhance the deployment of Shibboleth or Liberty standards as it evolves in both intra- and interorganizational infrastructures.

The problem of securing the myriad applications and databases within large organizations isn't going to be solved by developing increasingly secure firewall technology. Firewalls can go only so far — at some point, you'll have to develop a secure identity structure that's incorporated into each and every application. And projects such as Kerberos, Shibboleth and Liberty will lead the way. **52620**

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READERS' LETTERS

Jumping the Gun Hurts Vendors

I THINK the free-speech defense that Dan Gillmor cites in his column "Apple Suit Is Wrong Kind of Different" [QuickLink 52283] is misplaced. Truly, free speech is paramount to a democratic society and should be defended. Specifically, journalists play an important role in guarding that right.

However, publishing product information before official announcements are made can hardly be classified as journalism. It provides no benefit to the consumer and serves only to harm the creator, in this case Apple. Apple, more than any computer and electronics manufacturer, relies on creative design and market timing to stay in business. Being innovative is what has developed the company's brand and created a loyal fan base. Having the details of upcoming products made known prior to announcement does nothing but allow competitors to get a head start.

Journalism is a service to the people, to educate, protect and inform. Believe me, I enjoy finding out about a new product or other piece of news before my friends or colleagues as much as anyone, but this is not journalism, and Apple has every right to defend itself.

Aaron Spencer
Senior network engineer, Somers, N.Y.

HP Should Be Quiet

BE CAREFUL, Mr. Tennant, you might be showing your lack of knowledge concerning corporate financial reporting requirements ["Disquiet. Period." QuickLink 52181]. I suggest you research the problem Google had when certain comments were made prior to its initial stock offer. In matters with the SEC, caution is always the order of the day.

Dannis L. Robinson
IT manager, Beaumont, Texas

Revealing Secrets

I AGREE with Bruce Schneier ["The Curse of the Secret Question," QuickLink 52479] that the answer to Web sites' secret questions are too easy to find by hackers.

Worse yet, if my account is broken into, the hacker can often review the secret question and its answer, thus acquiring extra info about me, such as my mother's maiden name, Social Security number or birthday, which can be used to access my financial accounts. Although biometrics is better, the secret question can be made more secure by allowing the user to create his own question, as many sites do now. This lets me devise a question that only my closest and most trusted family members would know.

Gerry Champoux
Walled Lake, Mich.

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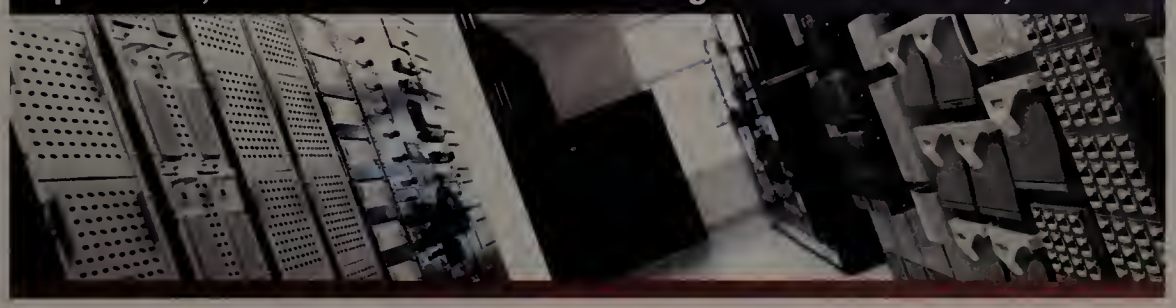

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TUESDAY, APRIL 12

Registration Open 11:00am - 8:30pm

9:00am – 9:30am	Breakfast
9:30am – 11:30am	**Pre-Conference Tutorials and Primers**
11:30am – 1:00pm	Luncheon
12:00pm – 5:00pm	**Pre-Conference Golf Outing**
1:00pm – 5:25pm	**End-User Case Studies; SNIA Voice of the User Track; SNIA Technical Tutorials Track; Deployable Solutions Track**
6:00pm – 8:00pm	Welcome Reception

WEDNESDAY, APRIL 13

Registration Open 7:00am - 8:00pm

7:15am – 8:15am	Breakfast
8:15am – 8:30am	**Opening Remarks**
8:30am – 9:15am	**Opening Visionary Presentation** Ira Winkler, Expert in Corporate and Computer Security Author of *Spies Among Us: How to Stop the Spies, Terrorists, Hackers and Criminals You Don't Even Know You Encounter Every Day*
9:15am – 9:45am	**End-User Case Study**
9:45am – 10:15am	**Industry Leader Presentation** Ann Livermore, Executive Vice President, Technology Solutions Group, Hewlett-Packard
10:15am – 10:30am	Break
10:30am – 11:00am	**End-User Case Study**
11:00am – 11:30am	**Industry Leader Presentation**
11:30am – Noon	**End-User Case Study: The Story (and Storage!) Behind Kodak's Online Photo Success** Sonja Erickson, Vice President, Technical Operations, Kodak EasyShare Gallery
Noon – 12:45pm	**Panel Discussion** Moderated by: Jon William Toigo, CEO & Founder, Toigo Partners International
12:45pm – 2:00pm	Luncheon
2:10pm – 5:40pm	**End-User Case Studies; SNIA Voice of the User Track; SNIA Technical Tutorials Track; Deployable Solutions Track**
5:40pm – 8:40pm	**Expo with Dinner and Interoperability & Solutions Demo** • 30-plus SNIA member companies collaborating on integrated solutions • Opportunity to meet leading experts and engineers

THURSDAY, APRIL 14

Registration Open 7:00am - 6:00pm

7:15am – 8:15am	Breakfast
8:15am – 8:30am	**Opening Remarks**
8:30am – 9:15am	**Opening Visionary Presentation**
9:15am – 9:45am	**Industry Leader Presentation**
9:45am – 10:15am	**End-User Case Study** Bob Logan, Vice President, Enterprise Infrastructure Services, SAIC
10:15am – 10:30am	Break
10:30am – 11:00am	**Industry Leader Presentation**
11:00am – 11:30am	**End-User Case Study** Sasan Hamidi, CSO, Interval International
11:30am – Noon	**Industry Leader Presentation**
Noon – 12:45pm	**End-User Panel** Moderated by: Steve Duplessie, Founder & Senior Analyst, Enterprise Strategy Group
12:45pm – 2:00pm	Luncheon
2:10pm – 5:40pm	IDC **Storage Analyst Briefing**
2:10pm – 5:40pm	**End-User Case Studies; SNIA Voice of the User Track; SNIA Technical Tutorials Track; Deployable Solutions Track**
4:00pm – 7:00pm	**Expo Open** • Cocktail Reception in Expo begins at 5:30pm
7:00pm – 9:30pm	**Gala Evening with Dinner & Entertainment**

FRIDAY, APRIL 15

Registration Open 7:30am - 10:00am

7:30am – 10:00am	Continental Breakfast
8:30am – 12:30pm	**End-User Case Studies; SNIA Voice of the User Track; SNIA Technical Tutorials Track; Deployable Solutions Track**
12:30pm	Conference Concludes

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❑ **I am an IT End-User*** (Complete Attendee Profile below)	❑ **$895** General Conference Package (April 13 & 14) (includes General Conference Sessions, Expo, Meals & Receptions) ❑ **$1,290** Total 4-Day Package (April 12, 13, 14, 15) (includes General Conference, plus Technical and Business Tracks, SNIA-produced Tutorials, SNIA-Certification "Test-Ready" Courses)	❑ **$1,295** General Conference Package (April 13 & 14) (includes General Conference Sessions, Expo, Meals & Receptions) ❑ **$1,690** Total 4-Day Package (April 12, 13, 14, 15) (includes General Conference, plus Technical and Business Tracks, SNIA-produced Tutorials, SNIA-Certification "Test-Ready" Courses)

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Attendee Profile: This section MUST be completed by IT End-Users and Channel Partners/Integrators/Consultants only (optional for all other registrations) in order to process your application.

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- ❑ Vice President
- ❑ Director
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BUSINESS MANAGEMENT
- ❑ CEO, COO, Chairman, President
- ❑ CFO, Controller, Treasurer
- ❑ Executive VP, Senior VP, VP, General Manager
- ❑ Director, Manager
- ❑ Other Corporate/Business Manager

Number of employees in your entire organization (ALL locations)
- ❑ 20,000 or more
- ❑ 10,000 - 19,999
- ❑ 5,000 - 9,999
- ❑ 1,000 - 4,999
- ❑ 500 - 999
- ❑ 100 - 499
- ❑ 50 - 99
- ❑ Less than 50

What is your organization's annual IT/IS budget for all IT/IS products?
- ❑ $1 Billion or more
- ❑ $500 Million - $999.9 Million
- ❑ $100 Million - $499.9 Million
- ❑ $50 Million - $99.9 Million
- ❑ $10 Million - $49.9 Million
- ❑ $1 Million - $9.9 Million
- ❑ $500,000 - $999,999
- ❑ $250,000 - $499,999
- ❑ $100,000 - $249,999
- ❑ Less than $100,000

What is the estimated annual revenue of your entire organization?
- ❑ Over $10 Billion
- ❑ $1 Billion - $9.9 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ Less than $100 Million

The one item that best describes your involvement in the IT purchase process
- ❑ Authorize/approve purchase
- ❑ Evaluate/recommend products, brands, vendors
- ❑ Specify features/technical requirements
- ❑ Set budget for expenditures
- ❑ Determine need to purchase
- ❑ Create IT strategy
- ❑ All of the above

Would you like to receive information about playing in the golf outing on Tuesday, April 12th?
- ❑ Yes
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Endgame for Tru64
Tru64 users have no choice but to plot a road map away from Hewlett-Packard's Unix system. Some will move to HP-UX, but others may have to explore other options. **Page 32**

SECURITY MANAGER'S JOURNAL
Assessing a New App Infrastructure
Mathias Thurman must assess his company's architecture, systems and applications before going live with an Oracle 11i deployment. **Page 33**

FUTURE WATCH
Computation Comes to Life
Researchers such as MIT's Thomas Knight (left) are taking the marriage of computer science and biology to a new level, turning cells into living computers with programmable DNA and biochemical memories. **Page 28**

IN BUSINESS TO Stay

Macs are still going strong in the graphics and digital media markets. And now Xserve may help Apple make inroads in the data center as well. BY MARK HALL

LAST MONTH, Brandchannel.com dubbed Apple Computer Inc. the "brand with the most global impact." But you'd never know it by looking at corporate desktops today.

Windows machines are the undisputed personal computers of choice for corporate IT, the biggest single market for PCs. Research conducted by Framingham, Mass.-based IDC underscores the fact. IDC ranked the maker of Macintosh machines No. 10 on its market-share list in 2004, two spots behind the Chinese company Lenovo Group Ltd. — and the list was prepared before Lenovo's planned acquisition of IBM's PC unit.

Yet despite significant efforts by Windows suppliers, Apple still remains a dominant player in vertical market segments such as publishing and digital media. And with the growing popularity of its low-cost Xserve Unix servers, Apple has an opportunity to compete head-to-head with industry leaders like Dell Inc. inside the data center for general-purpose applications such as e-mail and Web serving.

RICHARD DOWNS

Where's Mac?

Not surprisingly, according to research from New York-based TrendWatch, 83% of graphic designers, 77% of corporate design departments and 65% of advertising agencies rely on Macintosh computers. And publishers also continue to depend on Apple's machines.

Kim Vichitrananda, a desktop support engineer for 800 PCs and 250 Macs at *The Dallas Morning News*, acknowledges that Windows has comparable applications for the publishing market. But, she says, "those applications don't run as robustly on Windows. They're not as fast or as seamless as on the Mac. We could not replace Macs for PCs."

At The Home Depot Inc., senior engineer Bruce Covey evaluated only Mac options when he upgraded his video production equipment at the company's corporate headquarters in Atlanta. "We never considered the PC option, because it can't do what the Mac does in video production," he says.

Home Depot's video group standardized on dual-processor Mac G5 desktop machines with 2GB of RAM accessing 4TB of storage on Xserve RAID storage. Covey uses Apple's Final Cut Pro as his editing application.

His team also depends on outside freelance talent to produce nearly 300 10-to-45-minute videos every year on everything from CEO commentaries shot in the corporate studio to forklift-safety programs filmed in warehouses. Covey says the "lion's share" of freelance video talent "depend on Macs," so he does, too.

Mac Is Unix

Apple's embrace of Unix in its Mac OS X operating system gave the company a big boost among scientists who need hefty processing capabilities. Bill Van Etten, who does genetic research at the University of Pittsburgh, attributes the Mac's star power among scientists to the computer's ease of use, a broad set of scientific applications available for the Mac and, most important, its Unix-based operating system.

"As a life-science researcher, I simply have no use for an operating system that isn't Unix," says Van Etten.

In fact, OS X isn't just Unix but, with the exception of its user-interface and management tools code, it's open-source Unix. (The source code is located at *www.opendarwin.org*.) Apple integrates and specifically tunes its hardware for an additional 80 open-source projects, such as Apache, MySQL and JBoss for the Mac.

The Unix application software available for Macs is another benefit touted by users. "There are a ton of Unix apps designed for research," says Ben Hanes, senior systems analyst at Children's Hospital of Oakland Research Institute (CHORI), which is one of the top 10 recipients of research grants from the National Institutes of Health.

Van Etten acknowledges that "it is technically possible to get something for a Unix environment to run on Windows. [And] these applications might work sometimes, but it's slow, awkward and problematic."

At the Broad Institute for bioscience research in Cambridge, Mass., Stan Diamond, team leader for desktop support, says 95% of the servers in the institute's data center are Unix-based. About 20% of those are Macs.

It's doubtful that Oracle Corp. would have decided to port its Oracle 10g database to the Mac if the platform didn't have a Unix core. "We see value in OS X," says Sanjay Sadhu, director of worldwide alliances and channels at the database giant. "It's a great new enhancement." He adds that Oracle hopes to exploit Apple's strong position in the sciences and in creative and education markets.

In fact, Oracle has installed Xserves in its data center to run its Oracle Collaboration Suite for e-mail, voice mail and calendaring for 4,000 employees.

And Oracle is probably saving money doing so. Apple's dirt-cheap dual-processor Xserve competes favorably against Dell's PowerEdge 1850. The latter, loaded with dual 2.8-GHz Intel Xeon processors and 2GB of memory with 600GB of SCSI-based storage and a 25-user Windows license, rang up at $12,717 last month on Dell's Web site. An Xserve with two 2.3-GHz PowerPC G5 processors, 2GB of RAM, 580GB of ATA storage and unlimited OS X clients is a pittance in comparison, at $6,299.

Even running Linux, the Xserves are cheaper. And that's part of the reason the University of Pittsburgh's Van Etten, a Linux fan, opted for Xserves in his 120-node server cluster. The Mac is suddenly and uncharacteristically a low-cost option for IT shops.

A Safer Option

At Genentech Inc., a multibillion-dollar biotechnology firm in South San Francisco, Mark Jeffries oversees nearly 2,500 Macs. The senior systems specialist says the OS X machines are used "for various purposes," from scientists doing pure research to executives toying with spreadsheets.

According to Jeffries, the Mac's place in the market today is the result in large measure to Windows-centric IT shops that "have always been trying to find some reason to get rid of Macs." But he doesn't believe that the Mac is destined to remain locked in a few vertical segments, because of recent shifts in the technology landscape.

First, as Web services applications replace client/server software, Windows dependencies in an application's business logic disappear, as does the requirement for Windows machines.

The second shift, says Jeffries, is malware. He remembers a virus that shut down operations at a couple of his company's competitors in 2003 because of their total dependency on Windows while Genentech's business continued unaffected. He says the company's top executives took note of that event, and it reaffirmed their commitment to the Mac.

"The Mac is secure, if not bullet-proof," Jeffries says. That's because OS X was developed after the widespread adoption of the Internet, so Apple "designed it to be secure by default."

"Windows was designed for features, not security," he adds.

Across San Francisco Bay at CHORI, Hanes concurs. "Macs are safer," he says. "When we get a virus, it's because someone attached a Windows laptop to the network."

Hanes, who estimates that CHORI's hundreds of machines are evenly split between Macs and Windows, deploys Macs as his secure front line to the outside world. He has set up CHORI's mail and Web servers on OS X systems. Any malware, particularly mail-borne viruses, gets stopped there before reaching the network. "If it's touching the Internet, it's safer on a Mac," he concludes.

Most Mac technical support personnel argue that the machines are far simpler to manage than Windows boxes. For example, when Genentech went through a recent upgrade on both its Mac and Windows systems, one technician could completely upgrade six OS X machines per day, while on the Windows side, one person could complete only two or sometimes three PCs each day. And for the entire company, seven technicians handle nearly 2,500 Macintoshes.

Eighty percent of Digital Strata Inc.'s business is Windows users. Dan Fischler, president of the Scotts Valley, Calif.-based IT consultancy, estimates that one tech support person can manage 50 to 75 Macs, whereas ideally, there should be one for every 20 to 25 Windows PCs.

That's because of the high level of integration between the hardware and the software in a Mac, suggests Gary Winterboer, IT support engineer at AeroVironment Inc., an aerospace design firm in Monrovia, Calif. For example, Apple includes its Server Assistant tool, which sets up an Xserve machine with a single click. And the Server Admin tool lets users turn individual features on or off with a mouse click.

No one expects Macs to displace Windows as the desktop of choice for general-purpose computing. But Apple has deflected intense competition in its core vertical markets. And, for the first time, it's becoming a credible contender as an alternative for servers inside the data center. **52603**

THE LOW-COST ALTERNATIVE?

THE COMPARISON BELOW SUGGESTS THAT CORPORATE IT SHOULD SERIOUSLY EVALUATE APPLE'S DUAL-PROCESSOR XSERVE.

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APPLE XSERVE

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- 580GB of ATA storage
- Unlimited Mac OS X clients

COST: $6,299 (JANUARY)

The iPod Factor

APPLE'S RECENT emphasis on consumer gadgets and services such as the iPod and iTunes are boosting its position in the home computing market. According to research by Minneapolis-based financial services firm Piper Jaffray & Co., 6% of Windows users who bought iPods have switched to Macs, and 7% more plan to make the jump.

Kim Vichitrananda, a desktop support engineer at *The Dallas Morning News*, says the iPod helps Apple not only in the market, but with its bottom line, as it did in the most recent quarter, when Apple reported record profits. "It does tremendous things for name recognition [among] users of both platforms," she says.

And, says Stuart Wilkes, technical director of Iscentia Ltd., a Fortune 500 consultancy in Worcestershire, England, Apple's sound finances mean that "the Mac is not a risky investment anymore."

– *Mark Hall*

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COMPUTATION COMES TO LIFE

SOMEDAY, OUR MOST SOPHISTICATED CHIP FABS COULD BE LIVING CELLS.

BY GARY H. ANTHES

FOR YEARS biologists have used computer models and high-performance computers to simulate and understand living processes. More recently, computer scientists have drawn inspiration from biology to immunize information systems against malware and to create algorithms that mutate without human intervention. In all such cases, the underlying computer architecture has remained traditional and unremarkable — software running on silicon-based digital processors.

But now researchers are taking the marriage of computer science and biology to a remarkable new level, turning cells into living computers with programmable DNA and biochemical memories, sensors, actuators and intercellular communication mechanisms.

MIT researcher Thomas Knight is a pioneer in the field, which he calls "synthetic biology." "In 1992, it became clear to me that the end of the road was coming for silicon," says Knight, who was a designer of integrated circuits at the time. "We would have to shift from electronics and physics to an approach in which chemistry is the fundamental technology. And the most sophisticated chemistry is biochemistry."

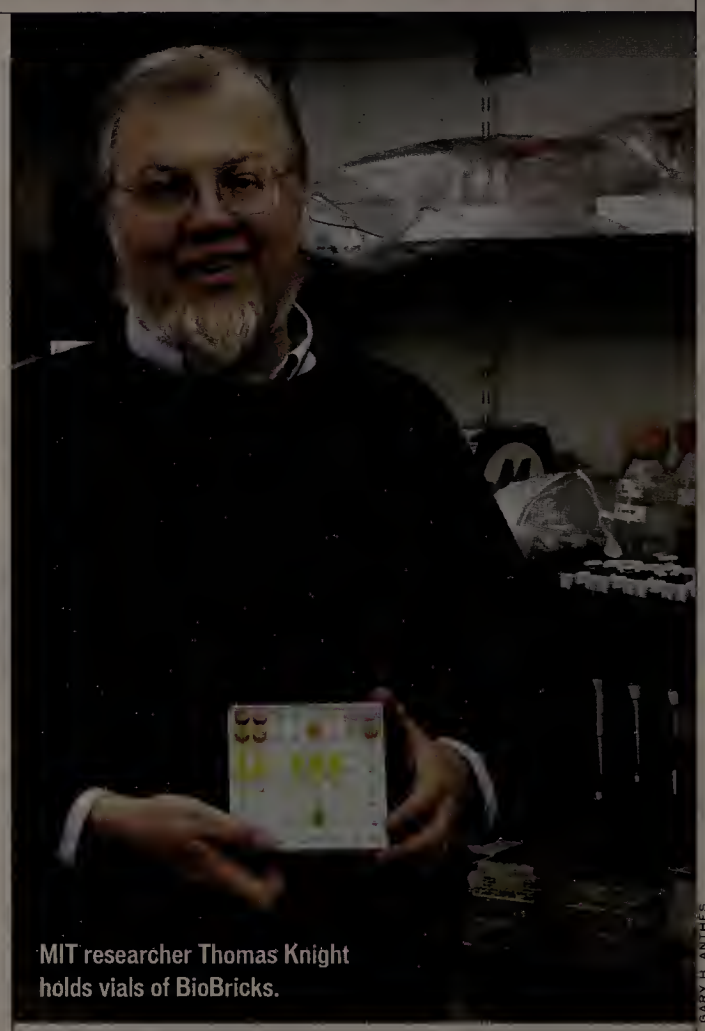
SHRINKING TARGETS

Chip-making processes today place atoms of silicon and dopants — impurities added to define the chip's electrical properties — crudely but well enough to make the chips work. As circuits shrink, however, it's getting harder to put the atoms, particularly the dopant atoms, in exactly the right places.

But biological processes for millions of years have been able to place single molecules and atoms in precisely the right order and locations. "Cells are good at building things — the most sophisticated factories we have," Knight says. "We as engineers have no clue at all how to do that."

Rather than wait centuries for conventional engineering to catch up, Knight and researchers at a handful of universities want to ride on the back of biology or, more precisely, inside the cell. Knight and a group of graduate students are building a tool kit of what they call BioBricks, standard parts that can be used to build programmable organisms.

Each of some 400 BioBricks is housed in a little vial of liquid containing copies of a carefully chosen and well-understood section of DNA. Each DNA fragment can mimic in some way the operations of conventional computer circuits. BioBricks can be used individually to perform very simple tasks, or they can be spliced together to do higher-level work. They allow someone to build programmable organisms without understanding the underlying biology.



MIT researcher Thomas Knight holds vials of BioBricks.

GARY H. ANTHES

There are BioBricks that act as logic gates, performing simple Boolean operations such as AND, NOT, NOT AND, OR, NOT OR and so on. For example, the AND BioBrick generates an output signal when it gets a biochemical signal from both its inputs, whereas an OR BioBrick produces a signal if it gets a signal from either input.

FUTURE WATCH

These biological components work extremely slowly by the standards of conventional computers, performing their functions in seconds or minutes rather than nanoseconds, and Knight says they are unlikely ever to exceed millisecond-level performance. "But that doesn't mean you couldn't use biological components to produce, say, carbon nanotubes," he says, that in turn could be used to build molecular-scale high-performance computers.

Or, Knight says, it's possible that living factories made from BioBricks could help build ultradense silicon chips by placing the troublesome dopant atoms at just the right points on a silicon lattice.

Ron Weiss, a former student of Knight's and now a professor of electrical engineering and molecular biology at Princeton University, is working on digital logic inside cells and intercellular communications. He says it will be a long time before synthetic biology contributes directly to computer science. "But eventually we might come up with an abstraction that allows you to program billions of little biological computing elements that are not robust at all and don't have a lot of resources," Weiss says, "and that might be a useful paradigm for programming certain kinds of silicon-based computational devices."

SMART PLANTS, AND MORE

Scientists at the University of Alberta in Edmonton are trying to develop a plant whose leaf shape or flower color changes when a land mine is buried below it. Roots would have to be genetically altered to detect explosives traces in the soil and to communicate that information to the leaves or flowers.

That will require some kind of sensor circuits in the plants' root cells, plus an actuator circuit in the leaf or flower cells, with little real computation in between. But, Knight says, one can imagine more-sophisticated computational engines inside a plant's cell that would, for example, cause the plant to bloom on Mother's Day or prepare itself for frost or drought based on warnings input by human weather forecasters. "What's noteworthy about that kind of computation is not that it's wimpy and slow, but that it's in a special place — inside the cell," he says.

But he's clearly uncomfortable speculating about miraculous applications of synthetic biology. A great deal of effort must first go into developing the kinds of design and measurement tools and methods that conventional engineers take for granted. "It's boring, tedious work, but it's extremely important," he says.

The ability of biological circuits to self-replicate makes synthetic biology unique among all engineering disciplines, Knight says. "Tremendous power comes from that, and some dangers," he says.

Researchers at MIT are limiting their work to two kinds of agents. The first are natural agents that are 100% safe, and the second are engineered organisms "not known to consistently cause disease in healthy adult humans," the government's definition of Biosafety Level 1 on its four-level scale of infection dangers. And, Knight adds, his work involves simplifying organisms, not adding features that could make them dangerous.

The greater danger in synthetic biology, Knight says, comes from the possibility that others will exploit it for evil purposes. "All powerful technologies are dangerous, and we are creating a powerful technology," he says. "Our best defense is our ability to do it faster, better and cheaper than anyone else." 52466

DIGITAL CELLS

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COMPUTERWORLD

THE VOICE OF IT MANAGEMENT)))

The Greening of Business Apps

Satya Nadella leads Microsoft's efforts to uncouple corporate applications to make them easier to deploy and integrate.

With a dozen years' experience at Microsoft Corp., **SATYA NADELLA** has been put in charge of the company's Project Green initiative, which was first announced in 2003. The aim of the project is to rearchitect Microsoft's business application offerings under a common, service-oriented architecture.

In a conversation with *Computerworld*'s Robert Mitchell, Nadella discussed where Project Green stands now, outlined the road map for the initiative — which he stressed is all about "sequential progress" and not "big-bang deployments" — and explained Microsoft's take on "loosely coupled" computing. Nadella also described how Microsoft is developing its offerings for midmarket users.

With Microsoft CRM and acquisitions, you have all the elements of a midmarket ERP suite. Is that the plan? We got into this business through a series of acquisitions, and we did some homegrown development, such as Microsoft CRM. We have ERP products, Microsoft CRM and our small-business applications that are part of Microsoft Office. In ERP, we have Great Plains, Axapta, Solomon, Navision — those are the four major ERP brands for the midmarket.

How will these products evolve? People want things to be simpler, more flexible, and they want to drive down the total cost. But they also want lots of features within a given business domain. To make sense of all this, we first developed what we call the customer model. It has three elements. The first is people. [Users] need a bridge between their ad hoc communications and their more structured, transactional work. The second thing is . . . business process complexity as defined by looking at an org chart. The number of people in a department sets the complexity, as opposed to the company size.

The last part is what we call work, or process. People in departments are working on some business process.

How will the move toward a service-oriented architecture affect these programs? We found five horizontal attributes that customers are asking for. The first one is that end users want simpler, task-oriented, role-based user interfaces that will help them navigate through information models they already have. Great Plains or Solomon have a pretty robust data model and object model underneath, but what [the user] is really saying is, "How are you going to help me get to the data I want?"

The next [attribute] is business insight. Yes, they want reports, but small and medium-sized businesses are really managed by exception. We call it operational BI.

The third piece is [being] connected. There is no such thing as a business application, an ERP application, living in isolation. The first level is to be able to open up our systems using Web services so you allow for these composite applications that can be built in a loosely coupled fashion using the new trends of SOA.

So the way we integrate between CRM and ERP is through an SOA-based approach to integration, which is a loosely coupled, asynchronous way to bring these systems together.

The next [attribute] is what we call adaptive process. All business applications today have gobs and gobs of business logic in code. The problem is, business processes are not static. What we've found is that in time, any business application gets out of sync with the actual process in the physical world, and that causes a lot of pain.

The real Holy Grail is to be able to take this thing that is written in code today and put it into a more modeled form. The [next challenge] is, how do we go into the system and start putting in models so we can increase the longevity of the system, and more importantly, how can we make the system more adaptive to change?

The last piece is the process centricity in our application design. That's where we're going, and that anchors our vision.

Is this where Project Green fits in? Project Green is one of those things that with a little help from us gets written up as different things by different people. Project Green is a bunch of research we're doing on those design pillars I talked about. It is also actual product delivery of that research in the context of releases of Great Plains or Navision or CRM. Project Green is showing up in our products today. When we start taking the innards of the business logic of these apps and start putting models on them, putting them on a single model, that's when you'll start to see us having a convergence of our core code.

So, what is the product road map for Project Green? Our road map is not this big bang — "here is a new product and go, all of you, migrate to it." Our road map is all about sequential progress on these five design pillars. You can measure [our progress] by the last release we did, and every 24 to 36 months we'll have another one.

How far are you willing to go with componentization and disaggregation of Microsoft's business applications? We absolutely believe in componentization and disaggregation that doesn't break the final assembly. Just saying, "Let's take SOA and apply it mindlessly to the entire core application" [doesn't work]. At the end of the day, there is a screen in front of the end user where he wants to be able to post a transaction. You have to draw the granularity boundaries very well. Otherwise, you just have components that can't be assembled.

Won't this approach lead to commoditization of software components? The most important thing to me from a componentization perspective is it allows me to make the systems I have much more agile to change. And that's the reality of business applications.

What challenges does this world of componentized applications present? Is a Web services description an API, or is it not an API? If people assume Web services are just APIs, you call them like you called them in the past, then you build systems that are no different.

You have to build more message-oriented systems. You now need to think through the workflow and control logic in your applications so that you're resilient to message passing. You can't have the control flow of your code be completely sequential and synchronous. You have to have a workflow, and you have to be in sync with it. That's a big mental shift.

Be careful, too, where you want to be asynchronous and message-oriented. You can't do a final transaction post in a journal in that form, because if you start doing that, you really are going to create all kinds of issues in terms of distributed transaction control and also the user experience.

Will componentization enable users to go to best-of-breed applications and mix and match, since presumably the integration costs will be less to do so? I believe . . . we will have more systems deployed in a decentralized fashion, and they will be easier to deploy and integrate. If they are not easier to integrate, it's easier for users to just buy one system. The beast that needs to be tamed in this case is all about integration cost. **52262**

SATYA NADELLA

Title: Corporate vice president, Business Solutions Group

Company: Microsoft

History: Before taking on his current role, Nadella was responsible for launching Microsoft bCentral, an Internet service provider for marketing and e-commerce tools for small businesses. Prior to joining Microsoft in 1992, he was on the technology staff at Sun Microsystems.

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With the Unix operating system on its way out, along with the Alpha hardware it runs on, Tru64 users must examine their options. By Patrick Thibodeau

Endgame FOR Tru64

WHEN TODD ACHENSON, Internet systems manager at Ohio University, spent more than $300,000 on two high-end Alpha servers in December, he also got something else: more time for his Tru64 Unix environment.

Like all Tru64 users, Achenson is facing a deadline. Hewlett-Packard Co. is discontinuing the Tru64 operating system and the Alpha server hardware it runs on. The double blow means that users must move applications to new operating systems and hardware platforms. But users who say Tru64's reliability, clustering and file management capabilities are second to none believe that they'll be trading down no matter what migration path they take.

HP will stop releasing new versions of Tru64 in December 2006 but continue support through at least 2011. The company released its final chip upgrade for Alpha servers last year but will continue to sell the servers through 2006.

Exploring Options

Many users are still deciding on a migration path, according to some consultants and vendors who work with Tru64 customers.

"We're just biding our time and looking at options," says Achenson, who has not decided on a migration path for critical network services managed by his 30 Alpha servers. He believes the two new servers will give the 25,000-student university in Athens, Ohio, up to two years of breathing room.

"I think the market is still grappling with it," says Vic Ahmed, CEO of Parsec Group Inc., a Denver-based consulting and training firm that is encouraging users to migrate to OpenVMS, which also has strong clustering capabilities. OpenVMS runs on Alpha, but HP recently ported it to Itanium. "There is still a pretty robust customer base on Tru64, and they are fairly happy with it," Ahmed says.

But some users weren't happy with HP's decision. "It's just a very big disappointment," says Nikola Milutinovic, Unix systems administrator at EPS JP Elektrovojvodina in Novi Sad, Serbia. The power company has decided on a Linux and Windows path for its Tru64 applications.

Achenson had been considering HP-UX, HP's recommended migration path, but reconsidered when HP announced in December that it was dropping plans to move Tru64 clustering and file management technology to HP-UX.

"That's been a big loss for us," says Achenson. "The True64 customers have been left high and dry."

Instead, HP announced an agreement with Veritas Software Corp. to integrate similar clustering technology in HP-UX, says Mary Ellen Lewandowski, a senior product manager for Tru64. She sees the changes as an improvement in the Tru64 road map, not a setback.

For instance, the decision improves the clustering technology, allowing management of multiple clusters, which Tru64 doesn't have, says Lewandowski. "Our commitment to our customers is to make sure they have the best road map there is," she says.

Tru64 traces its origins to 1988 and was owned for most of its life by Digital Equipment Corp. (see diagram). Digital was later acquired by Compaq Computer Corp., which merged with HP in 2002. HP quickly decided to retire Tru64. "You need to have one Unix that you are focused on, and HP-UX is a rock-solid Unix," says Lewandowski.

However HP justified the demise of Tru64, it was still difficult news for many users, such as the IT staff at BECU, formerly known as the Boeing Employees Credit Union. The Seattle-based firm is one of the largest credit unions in the U.S., with some $5 billion in assets and nearly 400,000 members.

BECU had been an Alpha shop for more than a decade, running OpenVMS, but the credit union was undergoing a major upgrade in 2000 and 2001 that included a move to an Oracle database it wanted to run on Tru64 Unix.

HP's decision was hard to take, says Scott Wolfe, enterprise architect at BECU. "We felt like we went out on a limb to introduce Tru64, as opposed to other operating systems that had a larger customer base," he says.

In BECU's search for new platforms, IT infrastructure director Jim Ratchford told his team members that they "weren't beholden" to HP and could look at other Unix systems.

BECU wasn't happy with HP's move, but decision-makers felt that HP would go the extra step to ensure that the credit union's migration was successful — and they may have been right. For instance, after deciding to move to Integrity Itanium-based servers, BECU's project faced a major delay because Quest Software Inc.'s database replication software hadn't been tested for Itanium. Quest's CEO called HP and got the testing environment he needed to keep the credit union's project on schedule, says Ratchford, who felt HP's fast response was an indication of the vendor's support.

Dwindling Support

Another reason Tru64 users will have to move off the system sooner rather than later is dwindling independent software vendor support.

Some vendors are applying HP's road map to their own products. For example, Fairfax Va.-based Datatel Inc. makes an ERP package used in higher education that runs on Tru64. It hopes to have most of its users off the operating system by the end of 2006, says John Van Weeren, technology product manager. The vendor also supports IBM AIX, Sun Solaris, HP-UX and Microsoft Windows and plans to support Red Hat Linux this year.

Datatel user Bucks County Community College in Newtown, Pa., moved to HP-UX last year from Tru64. Doug Burak, server network security manager, says many of the reasons for sticking with HP were business-related. The college has a long history with Tru64, as well as with HP systems generally, and believes HP will support its products.

Kenneth Farmer, a former systems administrator who operates the Tru64.org user forum, expects users will continue running the system "up until the very end, until they stop supporting it." **52601**

TRU64 HISTORY

Landmark dates:

1988: Open Software Foundation develops OSF/1 Unix.

1992: Digital Equipment Corp. takes over system and calls it Digital Unix.

1999: Digital is acquired by Compaq, renames system Tru64.

2002: HP acquires Compaq, sets new product road maps.

HP'S PLAN

Tru64: Updated version due in 2005. HP has since announced a new version update for 2006 as well.

Alpha: HP will sell Tru64 Unix AlphaServer systems until at least 2006, with support until at least 2011.

Engineering support: For Tru64 v4.0F and v4.0G was extended last year until June 30, 2007.

Assessing a New App Infrastructure

Before Web-based applications can be deployed, our security manager has to find the vulnerabilities. By Mathias Thurman

FOR SEVERAL MONTHS, my company has been upgrading to Oracle 11i. This is no trivial task, since we have dozens of critical revenue-generating applications that depend upon a successful upgrade and migration. A couple of weeks ago, the applications were ready to go live, and it was time for me to conduct a security assessment and mitigate any critical issues.

SECURITY MANAGER'S JOURNAL

Oracle 11i provides for an Internet-based application infrastructure. Previously, we had to use mainly client-based applications. That was always a problem, because it required each user to download and install the software he needed. Many users ended up with a dozen or so applications on their workstations, leading to performance problems and troubles when there were upgrades or patches.

Now we will have a single Web-based interface into the various modules users may need. A user in the finance department, for example, can click on a link that will take him to the accounts receivable, general ledger or accounts payable applications, assuming he has access clearance. Other employees will be able to enter expense reports or procure equipment from a single browser window.

Of course, new deployments always require an assessment. In this case, this is even more critical, since vulnerabilities are typically more prevalent in Web-based applications.

Our practice is to divide our assessments into three core areas: architecture, system and application.

As part of the architecture audit, we typically obtain all network diagrams, flowcharts, firewall rules, lists of administrators and accounts, and so on. We then take a rule-of-least-privilege approach. For example, when we understand how each application interacts with other areas of the infrastructure, we ensure that firewall rules allow for nothing more or less than the proper operation. We then look at the manner in which privileged accounts are identified, managed and audited, making sure that users are configured with the appropriate permissions according to function.

Next is the system audit. This entails running a variety of commercial and open-source tools against each system to ensure that they're installed without deviation from our security baseline and that administrators haven't made modifications that might leave a system vulnerable. For example, administrators sometimes create a ".rhosts" file in their home directory and place a "+" in that file. The .rhosts file allows the admin to connect to the server with utilities such as rlogin without supplying a password, but a "+" in that file lets anyone connect to the server without a password. It's convenient for the admin, but it's a security no-no. Just prior to going live, we run a comprehensive script that checks each system for the presence of such files, as well as for file permissions, accounts, password policy, cron jobs, applications, patches and so on. We know what a baseline system should look like, and any deviations are noted. Once we've run the script, we take a snapshot of the system using a tool from Portland, Ore.-based Tripwire Inc.

"The application audits always seem to generate the brunt of the work."

We also use Nessus, an open-source port scanner, to find vulnerable services, such as one that is running but isn't needed or is outdated.

The Hard Part

The application audit is probably the most critical element of our assessment. We have a pretty good handle on server hardware and operating system configurations, since those are fairly static environments. Any deviations can be detected via Tripwire and attended to accordingly. Applications are the Wild West in comparison. We have hundreds of developers around the world who all create applications based on different methodologies and coding techniques. Although we would like to develop some standardization, that's difficult in a big company with a lot of development done offshore.

For this stage, we again use both commercial and open-source tools. We currently use WebInspect from Atlanta-based SPI Dynamics Inc. to crawl through a Web site and look for dozens of Web server and application vulnerabilities such as SQL injection, cross-site scripting and authentication bypass attacks.

The results of the assessment were mixed. For the most part, the servers were configured within a previously defined baseline, with only a few deviations. In one case, a user enabled FTP on the server because he was too lazy to use Secure Copy to move files. On a few other servers, the administrator configured the system so that he could directly log in as Root.

But the application audits always seem to generate the most work. In this case, almost every application server had SQL injection vulnerabilities. A SQL injection attack allows a hacker to submit database commands through a form or via a URL that can be executed by the database. The fix involves enabling the application to recognize when these malicious requests are being submitted and to then reject them. This is also termed *input validation.*

In addition to the SQL injection vulnerabilities, developers had included sensitive information in the Comments fields of several scripts, and several Dynamo Application administration servers were configured with a default admin password.

There also were some minor Web server vulnerabilities, such as the ability to enumerate directories and view the contents of certain files, which could give a hacker valuable information.

The next step is to present these findings to the project managers and put together a mitigation plan. Once the plan is executed and the vulnerabilities are removed, we'll conduct a new assessment to ensure that there are no more open issues before we go live.

WHAT DO YOU THINK?

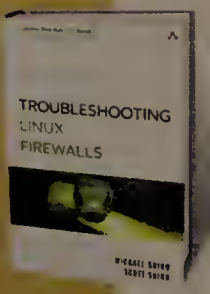
This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum: **QuickLink a1590**

To find a complete archive of our Security Manager's Journals, go online to **computerworld.com/secjournal**

SECURITY LOG

Security Bookshelf

■ *Troubleshooting Linux Firewalls*, by Michael Shinn and Scott Shinn (Addison-Wesley Professional, 2004).



Despite the title, I found this book better suited as a how-to guide for building Linux-based firewalls. If you're looking for a robust firewall but don't want to buy a commercial product, Linux is for you. And you'll want to pick up this book, which describes the planning, designing and building of Linux-based firewalls. The authors' expertise is immediately apparent, from a nicely written overview of IPTABLES and NETFILTER to command-line arguments and step-by-step procedures. Especially useful are their frequent suggestions, explanations of tools and sample firewall rules with detailed explanations.

– Mathias Thurman

Laptops Stolen From Contractor

U.S. government contractor Science Applications International Corp. last week reported that laptop computers containing personal information about the company's stockholders were stolen during a break-in at its corporate offices in San Diego. The Jan. 25 incident occurred in a building that houses administrative staff, so the company's outsourcing business wasn't affected, according to SAIC officials.

Worm Shows Up On U.S. Phones

The Cabir worm, which infects mobile phones running Symbian OS with the Series 60 user interface, has surfaced in the U.S. A Symantec Corp. engineer spotted two Nokia handsets with a variant of the worm on display in a shop window in Santa Monica, Calif., according to Mikko Hypponen, director of antivirus research at F-Secure Corp.

BRIEFS

Informatica Unveils Integration App

■ Data integration software maker Informatica Corp. has announced the PowerCenter Advanced Edition integration system. The application bundles together metadata management and data visualization technology, according to the Redwood City, Calif.-based company. PowerCenter Advanced Edition ships March 1. Pricing starts at $180,000.

NEC Releases Midrange Server

■ NEC Solutions (America) Inc. in Santa Clara, Calif., has unveiled the Express5800/320Lc midrange server. The product combines software monitoring tools and a hardware fault-tolerant system in one server. It includes redundant virtual I/O drivers for instant failover and support for dynamic resynchronization of memory and processors, NEC said. The server, available now, starts at $24,999.

Novell Initiates Open-Source Effort

■ Waltham, Mass.-based Novell Inc. has established a community project called Hula to create an open-source collaboration server. The server will provide calendar and e-mail functionality. Hula will be based on code taken from Novell's NetMail collaboration server product. Novell contributed more than 200,000 lines of source code to launch the effort.

Hitachi Upgrades Management Suite

■ Hitachi Data Systems Corp. has announced enhancements to its HiCommand suite of management products, including advanced support for Windows Server 2003. Hitachi also has improved measurement, analysis and diagnostic capabilities and added support for logical partitions, including external storage on the Hitachi TagmaStore Universal Storage Platform.

DOUGLAS SCHWEITZER

Two Sides of Vulnerability Scanning

THERE ARE TWO APPROACHES to network vulnerability scanning, active and passive. The active approach encompasses everything an organization does to foil system breaches, while the passive (or monitoring) approach entails all the ways the organization oversees system security. When making buying decisions for your organization, it's a mistake to think that you have to choose between the two types of protection.

DOUGLAS SCHWEITZER is an Internet security specialist. Contact him at dougneak@juno.com.

The passive approach allows security personnel to monitor which operating systems are in use; what is being sent to, from and within the system; which services are available; and where parts of the system may be vulnerable to security threats. The active approach, on the other hand, offers much information about system and application vulnerabilities.

Active scanning tools are used where constant vigilance is required. They have a specific area of focus that the product is programmed to monitor. (And they are sometimes configured to prevent particular situations as well, such as the use of USB key chains on a network.) Their core monitoring functionality is generally very rigid and can't be easily customized or extended.

When an organization uses the passive approach in scanning its LAN, the information obtained will normally include data pertaining to the hosts in the network — which ports are open, which software versions are being maintained and which services are running.

There is a huge potential with passive analysis because it allows you to assess the vulnerability of your software without interfering with the client or server. This technology facilitates IT asset management, since it allows an IT manager to instantly get a list of which users are running vulnerable copies of certain software programs.

When combined with passive vulnerability scanning, an active scan can help provide a more complete picture of the software load-out on client-side systems, as well as on servers. In short, the two types of scanners complement each other.

When it comes to selecting the right passive scanning product for your organization, there is no shortage of options. Tenable Network Security, for example, offers a product called NeVO. The NeVO vulnerability monitor can determine what's happening on your network without having to actively scan it. NeVO runs 24/7 and helps uncover whether any new hosts, ports, services or vulnerabilities have suddenly appeared since the last active scan of the network was performed. Although NeVO uses its own pattern matching and signature language to detect potential threats, Tenable does publish new NeVO signatures regularly, allowing you to easily keep this product up to date.

Guardian Digital's flagship operating platform, EnGarde Secure Linux, is another example of a passive security tool with intrusion-detection capabilities to assist users in pinpointing security threats. Guardian also offers the Internet Defense and Detection System, which the company claims is the first open-source IDS application to provide both enhanced intrusion-detection and -prevention capabilities in one system.

Highly customizable software such as GFI Software's LANguard Network Security Scanner is another example of a passive scanner that can unearth a wide range of security issues on your computer network. GFI also produces an active scanner called the LANguard Portable Storage Control, which is best applied to plug holes in very specific areas that have been identified by the passive scanner tools.

When deciding which approach to use on your network, remember that the key difference between the two approaches to security is action. Passive security involves providing notification of potential security issues, yet it allows those issues to continue until the administrator takes action. An active security system, on the other hand, alerts administrators of any issues in question and also takes measures to prevent them from causing damage, such as blocking the offending IP address or closing off the port.

The bottom line is that passive scanning in systems can expose a lot of information about all aspects of the system in normal communications without intruding upon operations. Active scanning has the potential to discover more information, and when combined with passive scanning, it gives a more complete picture. The wise IT manager will use both. **52611**

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MANAGEMENT

The Business Case for Linux
Building a formal business case for Linux is becoming increasingly important as more companies consider the open-source operating system for mission-critical applications. **Page 38**

New Project Perils
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Career Watch
CIO John Campbell answers a reader's question about project management skills. Plus, there's more bad news on IT salaries, and we look at some offshoring numbers. **Page 41**

City CIOs are using hot new technologies to raise revenue – and IT's status.

BY MATT HAMBLEN

Dianah Neff, CIO for the city of Philadelphia: "I've learned that you don't talk to a mayor about grid computing. You talk about how this technology is going to reduce costs."

SCOTT NIBAUER

POLITICAL Animals

AFTER YEARS of operating out of the limelight, city CIOs are taking starring roles as municipal governments begin launching new technologies to cut costs or earn revenue.

The job market for city CIOs is heating up, but the required skills reach far beyond technology. To sell their governments and the public on new ideas like wireless broadband, municipal CIOs also need sharp communication skills and political know-how.

"Street smarts are needed," says Dianah Neff, CIO for the city of Philadelphia. City CIOs today "need to be more political, absolutely," she adds.

Neff survived a major political battle last year over city-provided wireless hot zones that would compete with offerings from private-sector carriers. "Politics was never in any of our training agendas to become CIOs," she says, "but [being politically savvy] is more of our job today."

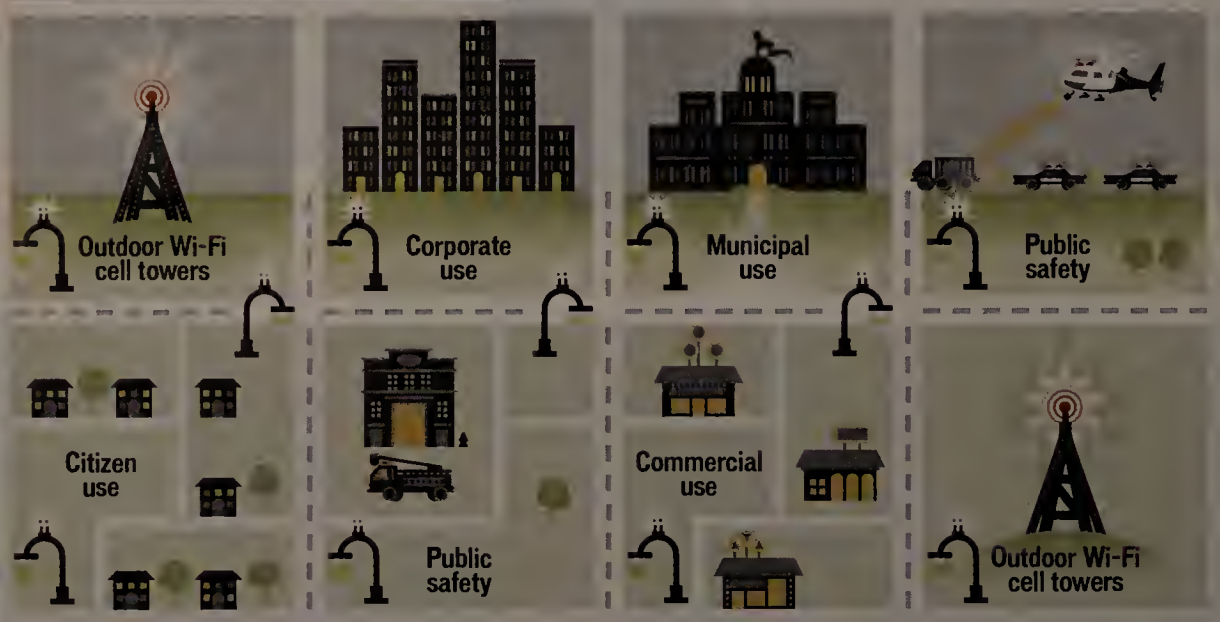
BEYOND TECHNOLOGY

Cities are looking for CIOs who are politically astute, have an eye on security, can improve city services such as public safety with a limited budget and can keep IT costs down, says Adam Kohn, vice chairman of Christian & Timbers, an executive recruitment firm in New York. "It's a big job, and if the city CIO messes up, it can be a public nightmare," he adds.

Neff knows the dangers. Last fall, she had what she calls an "unbelievable" experience dealing with the Pennsylvania legislature and lobbyists for local exchange carriers. It ultimately resulted in passage of legislation permitting Philadelphia to move forward with the creation of wireless mesh hot zones but re-

CITYWIDE HOT ZONES

New technology uses street lamps to build a mesh of Wi-Fi hot zones:



Out of the Engine Room

One leading-edge technology being deployed in U.S. cities is known as municipal wireless mesh hot zones. Based on the concept of Wi-Fi hot zones, they cover broader areas than the Wi-Fi hot spots in shopping malls and airports.

Some cities are building these hot zones for public safety needs. Others have gone further and are offering fast wireless connections to homeowners and businesses to replace cable modem and DSL services sold by the private sector.

Tropos Networks Inc. in Sunnyvale, Calif., has sold its Wi-Fi mesh routers to 125 cities, according to CEO Ron Sege. The devices are deployed from city street lamps in a mesh design of about 10 routers per square mile, giving 1Mbit/sec. connectivity using the 802.11 specification, he says. "It's quite a phenomenon, and the demand is increasing rapidly," Sege says, noting that Dallas and Philadelphia have deployed some of the routers, and other large cities, including Boston, Houston and New York, are in the early stages of considering the technology.

In some cases, Wi-Fi hot zones can generate revenue for cities, putting CIOs and their IT shops in the unusual role of profit center rather than cost center. "CIOs are excited to be doing something so visible in the community," Sege says. "They are out of the engine room and into the wheel house."

– Matt Hamblen

stricting other jurisdictions in the state from doing so. "We won the battle but lost the war," she recalls.

Neff had been the top IT professional at four other cities, but last year's battle taught her how to work with a much more diverse group of stakeholders than she ever had before, including state legislators, private-sector lobbyists and citizens groups of all flavors. "It has really broadened my scope of influence," she says.

The past year has taught Neff that city CIOs more than ever need good people skills and especially the ability to advocate for technology for a broad audience unversed in IT. "I've learned that you don't talk to a mayor about grid computing," she says. "You talk about how this technology is going to reduce costs."

Other city IT leaders agree that their roles are more vital — and more demanding — than ever. Bill Marion, information systems director for Milpitas, Calif., says his job has become more complex as the IT department has gotten more involved with general operations and city planning. For example, IT is helping urban planning groups decide where conduits for data cables will be run.

"There was a time we were known as data processing in the basement — a part of the finance department," Marion says. "Now we're a separate department that's interfacing with the public."

Milpitas has deployed mesh Wi-Fi for public-safety officials, and the technology will be evaluated for use by citizens. Meanwhile, he's deploying another innovative technology to transform IT's image as a cost center: Milpitas has provided a homegrown geographic information system to government entities outside of Milpitas for a fee.

Like many municipal CIOs, Brian Anderson of the city of Dallas is simultaneously concerned with innovation and cost-cutting. While Dallas is considering wireless mesh networks for public safety and public works, Anderson is also looking into cost savings from Web services and reductions in desktop operations. "I am the point man for so many things," he says.

Anderson agrees that political know-how is a must for today's city CIOs, but he stresses that, like their corporate counterparts, they need to understand their businesses. "We really need to understand the city's problems," he says. For example, if wireless broadband is offered to citizens, a city CIO needs to evaluate what city services will evolve from it and what fees or revenues might result, Anderson says.

HOT JOB

Kohn says he sees a trend toward greater interest in city CIO jobs, which have appeared on his "hot jobs" list for the first time in a decade. "Because of increasing [technology] demands on municipalities, this CIO job cannot be ignored," Kohn says. "The city CIO holds the key to security and services."

Big cities are "very competitive with each other" for IT talent, he adds. "The city CIO really is a hot job now and will be for the rest of the decade."

Although new technologies and the challenges they present may make such jobs more exciting, the salaries are still substantially below those of CIOs in the private sector, Kohn says. But he adds that municipal CIOs aren't in it for the money. "City CIOs all believe in supporting the government's overriding mission of serving the citizenry, and they all also like challenges," Kohn says.

Marion agrees, and he notes that cities tend to offer more-secure retirement benefits than the private sector, somewhat compensating for the smaller paycheck.

But the main reward is seeing new technology work for the public good. "We all get excited when we see the wireless working on the fire trucks," he says. **52513**

Wi-Fi Wars

The political fallout from the implementation of wireless broadband by dozens of city governments nationwide has grown dramatically in recent months.

Philadelphia CIO Dianah Neff ran into forceful lobbying by service providers in the Pennsylvania statehouse last November. And in early February, a Washington-based research group backed by telecommunications providers launched a media assault on wireless broadband plans. The New Millennium Research Council (NMRC) condemns the use of public funds for wireless broadband access to homes and businesses.

Saying there are "grave flaws" in the wireless rollouts and trials now under way in more than 125 cities, the NMRC alleges that "municipal Wi-Fi networks present a number of serious problems that are being overlooked as cities rush into committing millions in taxpayer dollars to pay for network development and expansion." The rollouts will have "a detrimental effect on city budgets and on competitions in the telecommunications industry," the NMRC says.

Critics of the report claim that it's biased toward the telecommunications industry. NMRC is funded by Issue Dynamics Inc., a well-known Washington-based lobbying firm for U.S. telecommunications companies, including those that fought metropolitan wireless efforts in the Pennsylvania legislature.

NMRC denies any bias in its report, which was written by U.S. Internet Industry Association President David McClure and Heartland Institute Senior Fellow Steven Titch, among others. (*Computerworld*'s Robert L. Mitchell is among those who believe that it's a bad idea for cities to get into the business of providing wireless broadband access; see QuickLink 52647.)

On another front in the Wi-Fi wars, Strategy Analytics Inc., a research and consulting firm in Newton, Mass., released a study that tallies the financial impact of all free Wi-Fi hot spots and zones – from those in Starbucks coffee houses to municipal wireless projects – on traditional cellular providers such as Verizon Wireless and Cingular Wireless LLC.

It reports that free Wi-Fi, as well as aggressive pricing of Wi-Fi capabilities from other traditional service providers, will place as much as $12 billion of the projected profits of U.S. wireless operators at risk through 2008. That will happen as U.S. operators invest $100 billion in advanced wireless networks.

–Matt Hamblen

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The Business Case for Linux

As open-source goes mainstream, Linux needs to clear the same hurdles as other operating systems. BY CAROL SLIWA

WHEN CENDANT Corp.'s Travel Distribution Services (TDS) division considered shifting its airline-fare system to Linux on Intel-based servers, the IT department couldn't simply flip the switch. The system handles 700 transactions per second in the course of processing millions of fares from more than 500 airlines around the world. So the IT team set aside a few months to do a careful analysis of the business case.

Now that Linux is more commonly viewed as a mainstream option for mission-critical functions, IT managers are increasingly evaluating the open-source operating system with the same due diligence with which they compare commercial offerings, according to industry analysts.

"It's not a science project anymore," says Julie Giera, an analyst at Forrester Research Inc. "At this point, Linux shouldn't be different than any other commercial software package you buy. The rules should be the same. The level of scrutiny should be the same, and the process for approval should be the same."

A key first step is establishing the criteria by which Linux will be judged. Enterprise Linux use has concentrated on the server, and decisions are generally made in concert with moves to cheaper hardware. So the business case is usually built for the hardware and the software operating system at the same time.

Two years ago, Chicago Mercantile Exchange Inc. (CME) was paying $20,000 to $40,000 for each of its Sun Microsystems Inc. servers running Solaris, according to Joe Panfil, the company's director of enterprise technology. When the CME needed to add capacity, the IT team was anxious to see if it could reduce the server costs.

Linux servers were priced at about $3,000 apiece, and a Red Hat Inc. support subscription tacked on another $400 per box, Panfil says. Even though the operating system can be downloaded for free, serious users typically don't want to risk running Linux without a support contract, especially if they're running mission-critical applications on it.

But cost wasn't the sole metric in the business case, particularly after Sun began to drop its server prices. The CME had to be sure that its critical third-party software products — Tibco Software Inc.'s middleware, BEA Systems Inc.'s WebLogic application server and Oracle databases — were certified to run on Linux, Panfil says.

Transaction speed was another key driver. The CME makes money based on the number of trades it can process, so every millisecond it shaves off the round-trip trading time counts.

But none of that would matter if the system didn't run reliably on Linux. Internally developed electronic trading, clearing and regulatory applications needed to be ported to Linux, and developers needed training to write code optimized for Linux.

Proving the Case

Once the metrics are established, it's time to test. For Orbitz Inc., that meant bringing together four members of its software team and four members of its hardware engineering team when the leases for the Sun servers that ran its BEA application servers were due to expire in the summer of 2002.

On paper, Linux made sense for Orbitz. The Chicago-based online travel service had the skills, infrastructure and tools to work with the open-source operating system, since the low-fare search engine it licensed from ITA Software Inc. already ran on Red Hat's Linux distribution.

But Orbitz still needed to make sure its WebLogic application servers would perform as well on Linux on Intel-based hardware as they had on Sun Solaris servers, taking into account new functionality the travel company was planning for its site.

So the Orbitz IT team consulted with the finance and product marketing departments to find out which new features they wanted and how much additional traffic they expected. Orbitz architects estimated what it would take to deliver the new features, and then systems engineers determined the hardware capacity that would be needed.

Orbitz did a CPU-for-CPU comparison of Intel Corp. processors running Linux against Sun Sparc processors running Solaris and found that the Intel CPUs performed twice as well, according to chief Internet architect Leon Chism. Orbitz then calculated the incremental cost of purchasing new servers from Sun and compared that with the amount it would spend if it adopted the open-source model and used greater numbers of smaller commodity servers. It also factored in the additional overhead required to manage the Linux servers. "We did that business case" over three months, says Pete Stoneberg, director of systems engineering, "and it clearly came out in the open-source Linux camp."

Cendant TDS built a lab to test 3-GHz Intel chips on eight-way IBM servers against the 900-MHz Sparc chips it had been using on 24-way Sun boxes. The goal was to see if its 360 Degrees Fares application could scale out through smaller, redundant Linux servers and reliably process an equivalent number of transactions in the same amount of time as the larger, more expensive Unix hardware.

"For our company, stability is important. We believed we could get high levels of stability through a highly redundant system built on lots of low-cost, high-performing Intel boxes," says Robert Wiseman, chief technology officer at Cendant TDS. "It turned out, for this application, we could run at least as many transactions through the Intel boxes as the Unix boxes."

Final Tweaks

That wasn't the end of it. The team ran the application for 30 days and found Unix more forgiving of problems such as memory leaks. Developers spent about three months tweaking the application code to deal with the slight operating system differences between Unix and Linux. "But at the end of the day," Wiseman says, "the redundant architecture we created with the Lintel environment gave us better stability."

The next step was determining the number of boxes needed, based on the number of transactions the hardware is capable of handling, and determining the headroom Cendant TDS wanted above the peak load. The numbers told the story.

"The cost of building out our platform on Lintel versus continuing to build on Unix was 90% less expensive," says Wiseman. "It was dramatic."

The business case for Linux also won the day at the CME, saving the exchange an estimated $2.8 million last year. "We had a lot of preplanning and thought in front of the move," Panfil says. "Where we've needed faster servers and cost reductions, we've implemented it, and we're happy."

But the evaluation is ongoing. "We're always going to be looking at new technologies," he says. "If Solaris 10 proves to be just as fast as Linux and more reliable, we'll implement it on commodity servers." 52516

Open-Source Costs, Benefits and Risks

COSTS	BENEFITS	RISKS
■ License fees	■ Architectural efficiency (modular building blocks)	■ Hidden costs
■ Maintenance (updates and new releases)	■ Business flexibility (no waiting on vendor schedules)	■ Lack of support
■ Support	■ Vendor leverage (improved negotiation position)	■ Missing features
■ Training (for developers and administrators)	■ Higher quality	■ Lack of operations management (outside of Linux, [illegible] tools are poor)
■ Planning	■ Fast problem-solving (visibility into source code)	■ Unpredictable [illegible]
■ Management	■ Improved IT skills (through interaction with open-source community)	■ Security
■ IT overhead		■ Intellectual property liabilities
■ Security		
■ Migration and integration		
■ Hardware/maintenance		

SOURCE: FORRESTER RESEARCH INC., CAMBRIDGE, MASS.

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2. **Quantities verified on secure database.**
3. **Timetables confirmed online.**
4. **Inventory added to order automatically.**
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NEW PROJECT Perils

Shifting regulatory terrain raises new obstacles for project managers. BY STACY COLLETT

AT JET BLUE AIRWAYS CORP., Vice President of IT Todd Thompson mapped out an aggressive IT schedule for a new payroll system and a slew of other projects to be completed by the end of 2005. But the company's controller had different ideas.

"You can't go live in the fourth quarter," she announced. The reason: The Sarbanes-Oxley Act calls for the toughest oversight yet of companies' financial reporting practices. As a result, auditors now look at any new financial systems deployed in the fourth quarter of the year as red flags.

Just when veteran project managers thought they had navigated the toughest project pitfalls, the terrain has shifted. Regulations introduced over the past few years are wreaking havoc with otherwise solid project plans. These changes can blow up project deadlines and budgets, drain staff and force project managers into the role of privacy police. Here are some of the obstacles in the new project landscape.

FOURTH-QUARTER TRAPS. The reporting requirements brought on by Sarbanes-Oxley have controllers putting the brakes on financial IT projects in the fourth quarter, says Holly Nelson, controller at Jet Blue.

In the real world, most projects are completed in the fourth quarter, says Catherine Tomczyk, a project manager at First Data Government Solutions Inc. in Greenwood Village, Colo. But in the financial realm, big expenses near year's end can give auditors the impression that someone is using up funds so they don't lose them.

Fourth-quarter projects may also raise auditors' suspicions that upgrades or new software may have been added without the proper controls in place.

Financial projects not scheduled with this in mind could be delayed until the first of the year and perhaps even lose funding, or IT could be pressured to bring projects live too soon.

AUDIT OVERKILL. Project managers at financial services firms also face other regulatory fallout, such as concerns raised by the Fair and Accurate Credit Transactions Act and the Fair Credit Reporting Act, which govern the storage and protection of consumer credit information.

At nonprofit student-loan provider Chela Financial Resources Inc. in San Francisco, students' credit scores are required to process applications, but the need to protect that information can lead to audit overkill. "We're working on one project now where we have three lawyers involved in the early requirements phase" because the regulations regarding how the data can be stored and protected are so specific, says Virginia Robbins, CIO and a *Computerworld* columnist. "Historically, we would only have one."

The bottom line: "More opinions mean more time, more money, and the cost of the project goes up," she says.

TALENT DRAIN. The USA Patriot Act is hampering the use of foreign nationals in U.S. projects. The act includes tight guidelines on the use of foreign workers on federal government projects, and it restricts their access to company information and facilities. The effect on projects can range from a nuisance to a serious blow.

At First Data, many members of Tomczyk's team are foreign nationals. "The day [the Patriot Act] went into effect, everything came to a crashing halt," she recalls. "My lead architect, two top developers and my whole mainframe group — close to 15 people — had to move to another wing of the building. We had to find space that wasn't in a secure area. We had to change IDs and passwords. They couldn't come in after hours. They had to be escorted everywhere."

The result: lost time, increased expense and lower morale.

INTELLECTUAL PROPERTY PROBLEMS. In the Internet Age, intellectual property is on everyone's mind. Too often, protecting it becomes the project manager's responsibility. "Every time you change the look and feel of a Web site, you have to copyright it," says Tomczyk. "Sometimes you're turning it out so fast, it becomes [the project manager's] responsibility to change copyright data."

Protecting intellectual property is even more challenging when part of a project is outsourced. In India and much of Asia, contractual agreements about copyright protection can be virtually useless, says Gopal Kapur, president of the Center for Project Management in San Ramon, Calif. "Contracts don't do anything [in India] unless employees have been trained" on copyright protection, he says.

Protecting sensitive company or consumer information is another challenge. Kapur recently visited a medical transcription outsourcing firm in India and learned that medical information from U.S. patients was openly available on its databases.

When part or all of a project is outsourced, building in real protections against copyright and intellectual property abuses can eat up time and resources. **52510**

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A LITTLE KNOWLEDGE

As young business managers get better versed in technology, IT project managers are finding that a little knowledge can be a dangerous thing.

Business managers sometimes think they understand all the IT issues and don't invite input from IT staff, says Virginia Robbins, CIO at Chela Financial Resources. "We've seen more team meetings [to launch new projects] where the technology [group] is not present," says Robbins.

But when these young guns miscalculate, budgets can skyrocket. On one such project, IT folks finally came in a third of the way through, Robbins says. When they checked on the technical requirements, "the cost-benefit analysis changed by five times," she says.

Realizing she needed a player in the game, Robbins chose an IT manager and reinvented his role as a "business owner of IT." He now represents IT business interests at every new project meeting. "He's at the same level as these other managers," she says. "He is their peer."

He's also the IT group's early-warning device, Robbins says.

– Stacy Collett

SUCCESS FACTORS

In November, The Standish Group International Inc., whose Project Chaos has been following project management successes and failures for more than a decade, listed its latest findings on what makes projects succeed. Here are Standish's success factors (in **bold**), with some additional observations about how the difficult new IT landscape makes success even more elusive:

- **User involvement.** But lately, some users have not only taken the lead, they've also excluded IT from project planning.
- **Executive management support.**
- **Clear business objectives.**
- **Experienced project manager.**
- **Minimal scope and requirements.** Avoiding scope and requirement creep has always been a challenge, but now regulatory requirements are adding cost and complexity to projects everywhere.
- **Iterative and agile process.** Layers of regulatory red tape are further slowing project teams' response times.
- **Skilled personnel.** The USA Patriot Act virtually cages foreign talent.
- **Formal methodology.**
- **Financial management.** Lately, some financial officers are letting audit red flags dictate project calendars.
- **Standard tools and infrastructure.**

Career Watch

ASK A PREMIER 100 LEADER

John Campbell

TITLE: Senior vice president and CIO

COMPANY: American Modern Insurance Group Inc., Amelia, Ohio

Campbell is this month's guest Premier 100 IT Leader, answering a reader's question about project management skills. If you have a question you'd like to pose to one of our Premier 100 IT Leaders, send it to askaleader@computerworld.com and watch for this column each month.

I have been in the IT field since 1978 as a junior programmer and am working my way up to a system analyst. Presently, I am enrolled in a study program to achieve a certificate in IT project management and a secondary certificate in business analysis. What are the job prospects for this combination? It's very encouraging to see that you are furthering your education. Continued learning and skill development are critical, given the pace of technology change and the highly competitive business environment.

Project management skills have been in high demand over the past several years, and the demand seems to be increasing. Companies now realize the importance project management plays in successfully deploying technology solutions.

IT has been criticized for not delivering an acceptable return on investment. An organization that values and embraces a strong project management culture is more likely to generate a higher documented ROI on technology initiatives. Training in project management should entail more than just how to plan, organize, staff and manage a series of technical tasks. It's important to address the business aspects, such as business process flows, requirements gathering, user-acceptance testing and, most important, business change management.

Business analysts are often called upon to assist with the extraction, interpretation, development and documentation of business rules, requirements and test plans. Business analysts might reside in IT or in a business unit. In either case, they need to have a thorough understanding of the business function they are supporting.

The job prospects for someone with training and experience in project management and business analyst techniques are extremely good. I would encourage you to complete the PMP certification awarded by the Project Management Institute. Look for companies that have a formal project management office. You may be hired as a business analyst, project coordinator or junior project manager. From there, you can learn the business and will have opportunities in project management for the industry you have chosen.

MORE BAD NEWS ON IT SALARIES

LAST YEAR, overall salaries for IT professionals dropped to levels not seen since 2001, according to a survey Dice Inc. released this month. But professionals in defense and government-related industries were immune to the trend, probably helped by greater spending since Sept. 11, 2001, the company said.

The average salary for IT workers decreased 2.6%, from $69,900 in 2003 to $67,800 last year, according to Dice, which surveyed 23,000 technology professionals.

One significant trend is that professionals in the government and defense sectors, as well as affiliated industries, saw their average salary rise from $64,600 to $66,500, passing their colleagues in both the manufacturing and Internet services sectors.

11%

The gender gap in IT salaries. But for all U.S industries combined, the differential that men enjoy over female employees is nearly double that.

SOURCE: DICE INC.

"The spending for homeland security and defense is the main factor," said Scot Melland, CEO and president of Dice, which runs Dice.com, home of one of the largest online technology-focused job boards in the U.S.

The growth in the defense technology market was also mirrored by changes in geographical statistics. Survey respondents in San Diego and Los Angeles reported a higher increase in their average salaries than did their colleagues in Silicon Valley. Several defense-related companies are located in Southern California. And Melland said defense spending is probably the reason behind job growth in Washington.

■ JOHAN BOSTROM, IDG NEWS SERVICE

OFFSHORE FOCUS

WHAT COUNTRY is gaining the most on India as a destination for offshore IT work? China and the Philippines might spring to mind, but they have nothing on Poland. Of course, Poland can't compare with India for the sheer number of IT jobs it hosts. But according to a study by Frost & Sullivan Ltd., for the three years from 2002 through 2004, Poland had a compound annual growth rate (CAGR) of 40.11% for outsourced IT workers in captive companies – those owned by the outsourcing clients – and 58.72% for outsourcing service providers. In India, the CAGR was 11.36% for captives and 12.32% for service providers. Jarad Carleton, an analyst at Frost & Sullivan, says Poland's attractions include a highly educated workforce and financial grants the government has made available to all industries, including IT.

And how many jobs did companies in developed countries send offshore? During the period studied, the high-cost nations analyzed (see chart) increased the number of IT jobs sent overseas by 826,540, for a total of 7,599,540. **52541**

JOB EXPORT TALLY, 2002-04

COUNTRY	2002	2003	2004	CAGR
U.S.	2,310,018	2,432,461	2,683,904	7.75%
U.K.	462,850	462,618	465,046	0.24%
France	447,883	458,661	471,242	2.57%
Germany	934,835	971,984	985,153	2.66%
Japan	2,316,955	2,499,927	2,656,090	7.07%
Hong Kong	300,459	306,458	338,106	6.04%

BASE: Data collected over a three-year period (2002-04) through 600 questionnaires. All respondents were screened to ensure that they were decision-makers in IT matters. Employers covered in the report ranged in size from small operations with fewer than 50 employees to global companies with more than 100,000 employees working in several countries. Frost & Sullivan also conducted interviews with company and government officials in 14 countries.

SOURCE: Frost & Sullivan Ltd.

EVENTS

Outsourcing

■ **April 4-6, Los Angeles**
Sponsor: Gartner Inc.
The Gartner Outsourcing Summit includes tracks on fundamentals of successful sourcing, changes and choices in the outsourcing marketplace, business process outsourcing, global sourcing and case studies.
www.gartner.com/us/itsourcing

Business Intelligence

■ **April 12, San Jose**
Sponsor: IDC
Business Intelligence and Business Process Forum topics include applying business intelligence, predicting the business impact of business intelligence projects, overcoming deficiencies in return-on-investment analyses, proven approaches to engaging across functional areas, and combining emerging technologies.
www.idc.com/events/events

Business Process Management

■ **April 12-13, Chicago**
Sponsor: BrainStorm Group Inc.
There are tracks for technology and business professionals. Tech topics include the business value of processes and standards, leveraging business rules, service-oriented architectures and business rules-engine case studies, and best practices. Business topics include business/IT alignment, business process portfolio management, enabling process innovation, leveraging process modeling and case studies. **www.brainstorm-group.com**

Information Intelligence

■ **April 19-21, Phoenix**
Sponsor: Delphi Group
Topics at the Next Generation Search, Content and Knowledge Management Summit include increasing customer service quality and responsiveness, intelligent customer interactions, text analytics, data mining, implementing enterprise search, managing metadata, and risk management and best practices. **www.delphigroup.com**

GEORGE TILLMANN

Innovation Doesn't Rust

"EVERYTHING that can be invented has been invented."

This is the often-published quote attributed to Charles H. Duell, U.S. Commissioner of Patents in 1899, suggesting that the patent office be permanently closed, since there was nothing left to invent. This statement, it turns out, was somewhat premature and overly simplistic.

GEORGE TILLMANN spent his first 17 years at McLean, Va.-based Booz Allen Hamilton Inc. as a management consultant in its IT practice and the past five as its CIO. You can contact him at **tillmann_george@bah.com.**

Similarly, there has been a lot of discussion recently about the predicted end of innovation coming out of IT and of IT as we know it. The most recent and most discussed predictions come from Nicholas G. Carr in his book *Does IT Matter?* (Harvard Business School Press, 2004). Carr sees historical parallels in the introduction, spread and eventual commoditization of all innovative technology, IT included.

He argues that an emerging technology can provide competitive advantage in the beginning, but that advantage quickly fades and innovation dries up as the technology becomes mature and ubiquitous. At that point, Carr says, we should stop assuming that it will provide future competitive advantage and treat it as a utility, where innovation is limited to controlling costs and managing service risk [QuickLinks 37990 and 46432].

Some agree that the days of IT-enabled innovation are over. Everyone has computers, everyone has networks, and everyone buys packaged software from the same suppliers. IT innovation is dead, so it's best to hunker down and accept IT as a utility.

But are these observers looking at the right IT? If you consider IT to be hardware, cables and silicon, then Carr and the others are probably correct. The advances attributed to IT can't be maintained if everyone has what everyone else has. We saw this in the erosion of the advantages early computer adopters experienced decades ago.

The physical properties of the silicon and copper of computer hardware limit what we can do with them. Even Martha Stewart doesn't have an infinite number of uses for pine cones and tofu. At some point, innovation simply becomes exhausted.

But there's another IT, an IT of ideas that doesn't grow old or become marginalized. It's this IT that created the innovative services that changed how we bank, build cars and communicate with the kids at summer camp. And if Carr is wrong, this may be the IT that cures disease, supports human colonies on Mars and maybe even makes sense of our taxes.

This is the IT of software — an IT quite different from the one of silicon and copper, because software, next to poetry, is perhaps the most conceptual of human creations. Software is an extension of human thought, and it will never be built out. Good innovators will always be able to stay ahead of their imitators.

Innovative companies have known about the two ITs for years. For example, more than a decade ago, companies in the securities industry were competing to build the automated systems that gave us the hedging and arbitrage program trading of the late 1980s and early 1990s.

If you had visited the groups that developed these tools, you would have seen that they weren't doing the data processing that produces your paycheck. This IT was a separate unit, often at a separate location, staffed by people who might never have been in the main data center. This IT was funded to create the systems they hoped would provide competitive advantage.

These companies knew that the differentiator between a utility and an innovative development organization wasn't the CPU, the disk drives or the networks; it was the minds of the individuals who created the software. Competitors, all using the same silicon and copper, produced results that couldn't have been more different. And what was the cause of that difference? Pure thought!

Carr is partially right: Companies should rein in the costs of the commodity IT that thrives on hardware and fiber. But IT for competitive advantage demands a separate and totally different treatment. It's not in danger of coming to an end or running out of innovation. This technology will continue to provide competitive advantage for as long as there are creative thoughts and a willingness to document them in programs.

Oh, and about Patent Commissioner Duell's comment that everything that can be invented has been invented: He never said it. Though often quoted and referenced, it simply isn't true. Commissioner Duell had more sense than that. **52446**

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Advertising Supplement

IT Careers: Diversity Role Models Respond to Challenge

Over the past decade one of the biggest challenges in attracting under-represented minorities and women to technical careers has been the lack of role models – people who have gone before and demonstrated that everyone has the opportunity to succeed. While the statistics relating to percentage of African Americans or Hispanics or women have not changed significantly over the past five years, the reality of being able to point to a significant leader who "looks like me" is gaining traction.

Two leaders identified as role models say there are two challenges for role models: demonstrating that role models are not celebrity entertainers or athletes and helping others realize the need for several role models, not just one.

Thaddeus Arroyo, Cingular Wireless' first and only CIO for a group of 6,000 IT professionals, says the only constant role model throughout his life has been his father, who established work ethics and an approach for creating his own success. Arroyo was chosen one of the 50 most influential Hispanics by Hispanic Engineering and Information Technology magazine. Arroyo says one of the most common things he discourages is for an employee to look at a specific job – CIO or Director, for instance – and drive to gain that job. "The approach I have always taken is not to look five layers up (the career ladder) and say that's who I want to be. Rather, I look at the leaders who are close to me, my direct managers or their bosses. This isn't about where you want to end up but where you want to go next, and then building the skills and experiences to get there. Otherwise, you're thinking so far ahead that you may miss out on building a skill set."

Arroyo reiterates the need for multiple role models because lessons can be learned from every person and situation. He says the composite of leadership and technical skills that develops over a career generates success. He pinpoints that this approach allows professionals to focus on *achieving* something vs. gaining a specific title or job.

Roy Perry echoes Arroyo's focus. Perry, who is corporate vice president of global supply chain management for StorageTek, is recognized this month as a Superhero in the "Engineering the Future" exhibit at the Chicago Museum of Science and Industry. "It's difficult for a student to look at an engineer and say that's exciting when they have rock stars and athletes that they see and hear every day," Perry points out. "We need to show them that there is a place for them (in information technology and engineering) to design and create, that they may not be able to dunk a basketball but they can have a passion for this."

Perry works to keep that passion, which he kindled as a child watching John Glenn and then through a series of teachers (and yes, he recalls Ms. Ward, Mr. Easton and Mr. Griffin by name). He believes it is critical to identify evolving leaders and then assure they have challenging assignments. "Sometimes I have to create that challenge," he says. "If a bright, technical person is idle, he becomes bored and you lose them." Perry adds community responsibility to role model categories, in addition to leadership and technical role models. He says to watch role models in all three areas to learn how they make decisions, execute and carry through. "The community responsibility is important because it rounds out the engineer or scientist, helps them to understand that they have a responsibility to their own families but also to making the community a better place. If you don't learn this, when you do become a corporate executive your view of corporate responsibility is quite diminished. We all need to think in a way that our company or business exists in this town, and this town should be better because we were here."

Two challenges for role models: Demonstrate that role models are not celebrity entertainers or athletes, and help others realize the need for several role models, not just one.

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Testing SP2

Gartner Inc. predicts that half of enterprise XP desktop systems will be running SP2 by year's end. But Gartner analyst Michael Silver said sporadic reports of applications being broken by the software proves the need for careful testing, "since there's no easy way to tell which applications may break and which will be OK."

Lengthy Process

And the testing clearly takes time. Jean Delaney Nelson, CIO at Securian Financial Group Inc. in St. Paul, Minn., said her company's SP2 project started in August, when the IT staff began researching which parts of the service pack it wanted to install. Securian then created and started testing operating system "builds" with applications, a process it expects to complete in May.

So far, Securian has identified a half-dozen applications that have issues with SP2, including some software that vendors haven't certified for the update, Delaney Nelson said. She added that none of the problems are major, but Securian won't be ready to start deploying SP2 to its 575 XP machines until July. Most of the company's 2,500 desktop machines run Windows 2000.

"SP2 is not just like a patch. It's almost like a whole new version of the software," said John-Mark Tucker, IT manager at Red Dot Corp. in Seattle. "It really should be considered an upgrade, and that should trigger more precaution."

But beyond isolated problems, Red Dot's SP2 installation has gone smoothly and is helping to protect the company from malicious attacks, Tucker said. A virus infected Red Dot's network during the SP2 testing period, but it had no effect on the machines running SP2, he noted.

DELANEY NELSON has started SP2 testing, which will take months to complete.

Red Dot, which makes heating and air-conditioning systems for large vehicles, participated in Microsoft's Technical Adoption Program and tested some 25 applications — including ERP and computer-aided design software — against new builds of SP2 during the beta period. Tucker estimated that the testing process took three to four days for each new build.

But some companies have hundreds of applications to test and still aren't ready to begin deploying SP2.

For example, Edmonton, Alberta-based Atco I-Tek Inc., the IT arm of Canadian energy and logistics company Atco Ltd., supports more than 600 operational applications on its XP systems, according to Bruce Schmidt, leader of Atco I-Tek's workstation architecture team.

"Smaller software vendors don't seem to be ready to commit to SP2 compatibility," Schmidt said. "Others will only commit with the latest product release, which is not always what is currently being used."

Only about a dozen of the company's 4,000 XP desktops have been updated to SP2. Schmidt said that thus far, most problems have been related to the new Windows Firewall technology. A looming concern moving forward is distributing the "jumbo-sized" SP2, he added.

> **"SP2 is not just like a patch. It's almost like a whole new version of the software."**
>
> JOHN-MARK TUCKER, IT MANAGER, RED DOT CORP.

At the Kentucky Department of Education, the only difficulty associated with its SP2 deployment was insufficient disk space on some systems, noted Tim Cornett, a network engineer at the agency.

SP2 checks in at 265MB, although Microsoft says the amount of code installed on systems could be smaller because the update is a "smart download" that will install only what the user actually needs. The average download for Windows XP Professional users is expected to be about 100MB, according to a Microsoft spokesman.

Microsoft claimed that a November survey of 800 enterprise customers who attended its educational workshops on SP2 showed that 77% planned to deploy the update during the next six months.

"We understand that many of our enterprise customers have very complex environments," said Jon Murchinson, a Windows group product manager at Microsoft. "We advised in August that they proceed with testing before they rolled it out to the general populace." **52824**

Correction

The name of Tim Dougherty, director of IBM's BladeCenter server division, was spelled incorrectly in a story in the Feb. 21 News section ("IBM, Sun Look to Simplify IT Infrastructure").

Microsoft's New Browser Plan Miffs Win2k Users

THIS MONTH's announcement by Microsoft Chairman Bill Gates that Internet Explorer 7.0 will be made available only to users of Windows XP SP2 and the upcoming Longhorn release of Windows isn't sitting well with some IT managers.

Although corporate users contacted last week said they're happy about the security-focused improvements that Microsoft plans to make to its Web browser, several added that they think IE7 should also be supported on Windows 2000.

"Windows 2000 was built for the Internet and bought with good-faith expectations on security," said Charlie Ward, manager of IT architecture at Duke Power Co. in Charlotte, N.C. "If IE7 works only on Windows XP SP2 and above, Microsoft is forcing customers with no other compelling reason to upgrade to spend additional money to protect themselves from flaws in Microsoft's products."

Microsoft last week declined to comment about IE7. A company spokesman said more details will be made available when the first beta is released.

Gates said during a keynote address at the RSA Conference 2005 in San Francisco two weeks ago that Microsoft expects to deliver a beta version by "early in the summer." He vowed that IE7 will add "a new level of security," including stronger defenses against phishing attacks, malicious software and spyware. But the earliest edition of Windows that will be supported is XP SP2, Gates said.

Martin Colburn, chief technology officer at the National Association of Securities Dealers Inc., said the industry standard is typically to make improvements backward-compatible for the previous one or two releases. He added that it would make sense for Microsoft to do the same, since the company has had "notoriously weak security" in its products.

"If [users] want a level of security that probably should have been there with the product all along, they've got to upgrade," Colburn said. "That's a little bit challenging for customers that have already set out their upgrade schedules."

Kindred Healthcare Inc. has about 11,000 desktops running Windows 2000. Because the Louisville, Ky.-based company plans to skip XP with the exception of tactical situations, it will have to wait for Longhorn to get IE7, said Rob Rhodes, a technical consultant at Kindred.

The desktop version of Longhorn is expected to be released next year. Microsoft originally planned to deliver IE7 and Longhorn at the same time.

But Craig Roth, an analyst at Meta Group Inc., said Microsoft wants to show that it's "not standing still" as the open-source Firefox browser continues to gain users. The new IE7 plan "has a bit of a freezing effect on companies that might have been thinking about changing browsers," Roth said.

Roger Wilding, a senior technical engineer at a global shipping and supply chain services company, said Microsoft is up to "its old tricks" with IE7. "They weren't going to do a new IE until Longhorn came out," he said. "Now there is a threat out there, Firefox, so they are reacting – but only a little bit."

Yet Wilding said his company, which he asked not be identified, has no plans to switch browsers. "Firefox doesn't work on some intranet sites we have, and there is no central way to patch it," he said.

Some users were sympathetic to Microsoft's plight. "As a software guy myself, I'm well aware of the time and cost to do backward compatibility," said Jeremy Lehman, CIO at New York-based Thomson Financial. He added that it's "better to have something now than wait another year for a perfect solution."

– *Carol Sliwa*

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FRANK HAYES ■ FRANKLY SPEAKING

Paris Hilton & You

IT DIDN'T REQUIRE a California law for data-theft victims to be notified after Paris Hilton's phone book hit the Web a week ago. Oh, they knew. Dozens of celebs, ranging from rapper Eminem to tennis babe Anna Kournikova, suffered through hundreds of calls from fans, pranksters and anyone else who found the contents of Hilton's T-Mobile cell phone on the Internet. There were also snapshots, to-do lists and transcripts of Hilton's text-messaging chats. But what caught headlines were the phone numbers of all those poor, beleaguered B-listers, suddenly out there where any nobody with a dialing finger could call them.

C'mon, stop snickering. I'm getting to a serious point here.

See, Hilton thought all that personal data was on her cell phone, tucked safely away in her . . . well, wherever she keeps it. But she was wrong. The data's real home was on T-Mobile's servers. Her Sidekick II phone stored the data there automatically, just as it was designed to.

That arrangement means the data won't be lost if the phone is damaged or the batteries die. But it also means that if anyone were to hack into T-Mobile's servers, they'd have access to whatever Hilton put in her phone: pictures, documents, phone numbers, the works.

And T-Mobile's servers have a history of being hacked. In October 2003, intruders got into T-Mobile's customer databases and acquired passwords and other information that, in turn, let the bad guys access customer accounts. Hilton's account information was reportedly compromised at that time.

So was account information for a hotshot U.S. Secret Service agent, Peter Cavicchia. Cavicchia didn't store the numbers of celebrity friends on his phone — that is, on T-Mobile's servers. He stored material linked to ongoing Secret Service criminal investigations.

According to the New York *Daily News*, that allowed one or more hackers to access numerous Secret Service documents, including reports, requests for subpoenas and a confidential treaty with Russia.

Cavicchia has since left the Secret Service, which says the security breach didn't compromise any ongoing investigations. And last week 22-year-old Nicholas Jacobsen pleaded guilty to the 2003 T-Mobile break-in. He'll be sentenced in May.

Now think: If a Secret Service agent stored sensitive information on his phone, how many of your users have likely done the same thing? And even if you've warned them to guard their phones carefully, how many have unknowingly stored sensitive company documents or data on a cell phone company's servers, where the only thing standing between that data and hackers is security you have no control over?

You can't protect that information. You don't even know what information is at risk. And your users don't even know it *is* at risk.

Not snickering now, are you? We're not talking about glitterati inconvenience and embarrassment any more. This is about your job: protecting your company's data.

What can you do? You could ban the use of state-of-the-art cell phones (which won't work). Or you could carefully audit every user's phone account for security (which would add a huge amount of work).

Or you can once again take on the challenge of educating your users. You can explain the risks of storing company data on their phones. And offer guidance about what data is safest to keep on which phones. And encourage them to consult with IT to keep potential problems to a minimum.

Yes, that's still a big job. It will require educating yourself on cell phone risks, too. But if you can get users to understand what's on the line, maybe you can get them to help you keep that data secure instead of fighting you.

After all, you don't *really* want to end up like Paris Hilton, do you?

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FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

When Users Get Creative

Client is giving contract developer pilot fish the requirements for a new system to manage his transport business. According to the client, an open ticket should be valid for return travel up to a month after the outbound journey. How should the system calculate "a month after"? fish asks. Thirty days later? "No, one month later," says client, "the same date in the following month." So what is the date one month after Jan. 31? asks fish. Client: "February 31."

SHARK TANK

Time-out!

This machine shop uses PCs just for time and attendance reporting. But one morning, arriving first-shift workers call the help desk to complain that they can't clock in. "They said they could see the log-in screen but couldn't type their IDs and passwords," IT pilot fish says. "A trip to the shop floor proved them right and made it clear we needed to lock down the PCs much tighter. Someone on second shift made a screenshot of the log-in screen, then saved it as the wallpaper on all the machines!"

You Awake?

On-call IT pilot fish gets beeped at 1 a.m. by a computer operator whose mainframe is misbehaving. "I had it fixed after about an hour," fish reports. "I messaged the operator that the job had been restarted, and he could continue with the nightly cycle. About a half-hour later, he kindly woke me again to inform me that the job completed successfully. I thanked him for his diligence and told him it was not necessary to wake me up again for successful completions."

Yeah, but It Worked, Didn't It?

User is getting an error message she doesn't understand, so support tech asks her to send him a screenshot so he can see what she's talking about. "A few minutes later, he gets a PDF file attached to an e-mail," reports a pilot fish on the scene. "She took a picture of her computer with her digital camera and e-mailed the picture to him."

So That's It!

Telecommuting programmer wants to connect remotely to his office PC, but he keeps getting an error message. Net admin pilot fish stops by and checks out programmer's PC, and remote connectivity seems to operate just fine. "I demonstrate that it's working and ask him to try to connect that evening," fish says. "Next morning, same report – no connectivity – but this time he includes a screen print of the message, and I know what's wrong. I inform him that remote connectivity works much better if he doesn't turn his computer off when he leaves the office."

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COMPUTERWORLD Pass Along Application

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9 **Please check below all the Enterprise Software/ Services that you either currently help acquire and/or plan to acquire annually either through approval, planning, recommendation or specification.**
(Check ALL that apply in each column)

Current	Planned	
❑	❑	01. **ENTERPRISE SOFTWARE/SERVICES**
Current	Planned	
❑	❑	02. Application Service Providers (ASPs)
❑	❑	03. Enterprise Resource Planning (ERP)/ Customer Relationship Mgmt. (CRM)
❑	❑	04. Knowledge Management (KM)
❑	❑	05. Groupware/Messaging
❑	❑	06. Systems Management
❑	❑	07. Accounting/Financial
❑	❑	08. Data Mining/Data Warehousing/ Statistical Analysis
❑	❑	09. Business Intelligence/Data Management
❑	❑	10. Relational Database (RDBMS)
❑	❑	11. Middleware
❑	❑	12. Application Development Software
❑	❑	13. Sales Automation/Marketing
❑	❑	14. Document Management/Imaging
❑	❑	15. Transaction Processing
❑	❑	16. Human Resources (HR)
❑	❑	17. E-mail/Directory Services
❑	❑	18. PC Applications/Suites
❑	❑	19. Regulatory Compliance Products/Services
Current	Planned	
❑	❑	20. **APPLICATION DEVELOPMENT**
Current	Planned	
❑	❑	21. JAVA
❑	❑	22. NET
❑	❑	23. Application Development Management Tools
❑	❑	24. Other Application Development Software
❑	❑	25. Web Services

NONE of the above ❑ 99.

10 **Please check below all the Hardware products that you either currently help acquire and/or plan to acquire annually approval, planning, recommendation or specification.**
(Check ALL that apply in each column)

Current	Planned	
❑	❑	01. **HARDWARE**
Current	Planned	
❑	❑	02. Mainframes
❑	❑	03. UNIX Servers
❑	❑	04. Windows Servers
❑	❑	05. Linux Servers
❑	❑	06. Blade Servers
❑	❑	07. PCs/Workstations
❑	❑	08. Laptops/Notebooks
❑	❑	09. Handheld PCs, PDAs, Pocket PCs, Wireless Devices

10 Continued

Current	Planned	
❑	❑	10. **PERIPHERALS**
Current	Planned	
❑	❑	11. Printers/Copiers/Multifunction
❑	❑	12. Removable High-Capacity Storage
❑	❑	13. Tape Backup Systems
❑	❑	14. Monitors
❑	❑	15. Scanners
❑	❑	16. UPS
❑	❑	17. LCD Projection Devices

NONE of the above ❑ 99.

11 **Please check below all the Products or Technologies that you either currently help acquire and/or plan to acquire annually either through approval, planning, recommendation or specification.**
(Check ALL that apply in each column)

Current	Planned	
❑	❑	01. **NETWORKING PRODUCTS & TECHNOLOGIES**
Current	Planned	
❑	❑	02. Wired LANs
❑	❑	03. Wireless LANs, Wi-Fi
❑	❑	04. Switches, Routers, Hubs
❑	❑	05. Security/Firewalls
❑	❑	06. Network Systems Mgmt. Software
❑	❑	07. Network Security Software
❑	❑	08. Load Balancing
❑	❑	09. VoIP
Current	Planned	
❑	❑	10. **STORAGE**
Current	Planned	
❑	❑	11. SAN (Storage Area Network)
❑	❑	12. NAS (Network Attached Storage)
❑	❑	13. Storage Management
❑	❑	14. Disk Arrays (Fiber, SCSI)
❑	❑	15. Disaster Recovery/Business Continuity
❑	❑	16. Desktop Storage
❑	❑	17. Other Storage

11 Continued

Current	Planned	
❑	❑	18. **SECURITY**
Current	Planned	
❑	❑	19. Firewalls
❑	❑	20. IDS/IPS
❑	❑	21. VPN Services
❑	❑	22. Anti-Virus
❑	❑	23. Smart Cards
❑	❑	24. Biometrics
❑	❑	25. Security Mgmt. Services/Software
Current	Planned	
❑	❑	26. **INTERNET INFRASTRUCTURE**
Current	Planned	
❑	❑	27. Web Applications/Authoring Tools
❑	❑	28. Content Management
❑	❑	29. Web Site Mgmt./Performance Monitoring
❑	❑	30. Supply Chain

NONE of the above ❑ 99.

12 **Are you currently outsourcing or planning to outsource within the next 12 months, any of the following IT functions or services?**

- ❑ 01. Application development
- ❑ 02. Application support/maintenance
- ❑ 03. Help Desk/Call Center
- ❑ 04. Network operations
- ❑ 05. Business processes
- ❑ 06. Security Services

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2 Which of the following best describes your organization's industry or function at this location? (Check ONE only)

NON-COMPUTER RELATED INDUSTRIES

❑ 01. Aerospace
❑ 02. Manufacturing & Process Industries (non-computer related)
❑ 03. Finance/Banking/Accounting
❑ 04. Insurance/Real Estate/Legal Services
❑ 05. Government: Federal (including Military)
❑ 06. Government: State or Local
❑ 07. Health/Medical/Dental Services
❑ 08. Retailer/Wholesaler/Distributor (non-computer related)
❑ 09. Transportation/Utilities
❑ 10. Communication Carriers (ISP, Telecomm, Data Comm, TV/Cable)
❑ 11. Construction/Architecture/Engineering
❑ 12. Data Processing Services
❑ 13. Education
❑ 14. Agriculture/Forestry/Fisheries
❑ 15. Mining/Oil/Gas
❑ 16. Travel/Hospitality/Recreation/Entertainment
❑ 17. Publishing/Broadcast/Advertising/Public Relations/Marketing
❑ 18. Research/Development Lab
❑ 19. Business Services/Consultant (non-computer related)

COMPUTER RELATED INDUSTRIES

❑ 20. Mfg. of Computers, Communications, Peripheral Equipment or Software
❑ 21. Computer Related Retailer/Wholesaler/ Distributor
❑ 22. VAR, VAD, Systems or Network Integrator
❑ 23. Computer/Network Consultant
❑ 24. Service Provider (ASP, ESP, Web Hosting)
❑ 25. E-commerce/Internet and other Computer Related Business Services
❑ 98. Other_____
please specify

3 What is your primary job title? (Check ONE only)

IT MANAGEMENT

❑ 01. CIO, CTO, CSO
❑ 02. Executive VP, Sr. VP
❑ 03. Vice President
❑ 04. Director
❑ 05. Manager/Other IT Manager
❑ 06. Supervisor
❑ 07. Systems integrator
❑ 08. Technical Consultant

BUSINESS MANAGEMENT

❑ 09. CEO, COO, Chairman, President
❑ 10. CFO, Controller, Treasurer
❑ 11. Executive VP, Sr. VP, VP, General Manager
❑ 12. Director, Manager
❑ 13. Other Corporate/Business Manager
❑ 14. Consultant (Non-Technical)

IT STAFF

❑ 15. IT Staff (including Software/Tech. Engineer)

OTHER

❑ 98. Other (Non-Manager)
_____
please specify

4 What is the total number of employees at all locations in your entire organization including divisions, branches and subsidiaries? Consultants: Please answer for the number of employees of your largest client. (Check ONE only)

❑ 01. 20,000 or more
❑ 02. 10,000 - 19,999
❑ 03. 5,000 - 9,999
❑ 04. 1,000 - 4,999
❑ 05. 500 - 999
❑ 06. 100 - 499
❑ 07. 50 - 99
❑ 08. Less than 50

5 What is your organization's total annual budget for information services, including computers and communications hardware, software, consulting and services? Consultants: Please include the budget for your clients as well as that of your own business. (Check ONE only)

❑ 01. $1 billion or more
❑ 02. $500 to $999.9 million
❑ 03. $100 to $499.9 million
❑ 04. $50 to $99.9 million
❑ 05. $10 to $49.9 million
❑ 06. $1 to $9.9 million
❑ 07. $500,000 to $999,999
❑ 08. $250,000 to $499,999
❑ 09. $100,000 to $249,999
❑ 10. Under $100,000
❑ 99. None

6 For the product/service groups listed below, please indicate the annual dollar value of computing/networking/communication equipment and software/services, which YOU are currently or will be involved in purchasing.

Please write the correct number code for the dollar amount on the corresponding line. **Note:** If you cannot distinguish between this and other location(s), put response in the first column. **Consultants:** Please include what you recommend for your clients as well as what you buy for your own business.

01. $250 million or more	08. $250,000 to $499,999
02. $150 to $249.9 million	09. $100,000 to $249,999
03. $100 to $149.9 million	10. $75,000 to $99,999
04. $50 to $99.9 million	11. $50,000 to $74,999
05. $10 to $49.9 million	12. $25,000 to $49,999
06. $1 to $9.9 million	13. Under $25,000
07. $500,000 to $999,999	99. None

PRODUCT/SERVICE	For this location	For all other locations
Electronic Commerce/ Internet Business	_____	_____
Internet/Intranet/Extranet	_____	_____
Telecommunication Equipment/Service	_____	_____
PCs (desktop/notebook)	_____	_____
Servers/Workstations	_____	_____
Networking Products/ Services	_____	_____
Large Distributed Systems (mainframe/midrange/mini)	_____	_____
Peripherals	_____	_____
Software	_____	_____
Mobile/Wireless/Handhelds	_____	_____
Storage Management	_____	_____
Systems Integrators/ Consultants	_____	_____

7 Please select the statements below that best describe your personal involvement in the purchase process for IT products/services (including e-business initiatives) for either yourself at work, for others in your organization or on behalf of a client. (Check ALL that apply)

❑ 01. Authorize/approve purchase
❑ 02. Evaluate/recommend products, brands, vendors
❑ 03. Specify features/technical requirements
❑ 04. Set budget for expenditures
❑ 05. Determine need to purchase
❑ 06. Create IT strategy
NONE of the above ❑ 99.

8 Please indicate the Operating Systems/Network Environments currently in use or planned for use at this entire location. (Check ALL that apply)

❑ 01. Windows Server 2003
❑ 02. Windows XP
❑ 03. Windows 2000
❑ 04. Windows NT
❑ 05. Windows 95/98
❑ 06. Windows CE
❑ 07. Palm OS
❑ 08. OS/400
❑ 09. VM/MVS
❑ 10. Linux
❑ 11. UNIX
❑ 12. Solaris
❑ 13. Netware
❑ 14. Mac OS
❑ 98. Other
NONE of the above ❑ 99.

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